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ASCE SALARY SURVEY 1981

A Report prepared by the Committee on Employment Conditions of the Professional Practice Division of the American Society of Civil Engineers

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ASCE
1981 Salary Survey

Report by the Committee on Employment Conditions

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ASCE
1981 Salary Survey

Report by the Committee on Employment Conditions of the Professional Practice Division

I Introduction

Periodic salary surveys are useful tools for both employers and employees. ASCE has recognized this since 1914, when it published its first known salary survey. The society continued to conduct surveys at varying intervals until 1950, when the survey became a scheduled, biennial project. This report is for the 16th ASCE Salary Survey in that biennial series. A bibliography of previous surveys of the series is in Appendix IV. The Committee on Employment Conditions (COEC) has been charged with conducting the periodic salary surveys since the committee was established in 1971, in conformance with society bylaws to "collect, codify, and prepare for distribution such data as may be calculated to be of value to civil engineers, both employers and employees, in connection with proper classification of engineering positions and equitable compensation for services. . . ."

Salary survey questionnaires are sent to employers during the third or fourth quarter of odd-numbered years, and the data collected represents, therefore, salary and benefit conditions for that period. This report is for the fourth quarter of 1981. Salary data from other sources are available covering other periods, as discussed in Section V. Salary data were collected and analyzed based on ASCE Professional Grades for eight employment categories in seven regions. The employment categories included private employers (consulting firms; construction firms; design/construct firms; and railroads, utilities, and industries), public employers (state government departments and agencies; municipalities, counties, and regional authorities), and education (12-month contract

basis; 9-month contract basis). Federal agencies were not surveyed since the majority of Federal salaries and benefits are standardized by the Civil Service Commission, and are a matter of public record. A table of Federal G.S. grades and salaries are included in Appendix I, and a table relating ASCE Grades and Federal G.S. Grades is in Appendix III. Six regions within the continental United States were included, with Alaska, Hawaii and foreign responses comprising the seventh region. In addition to base salary data, detailed information on nonsalary benefits was requested, along with feedback from employers concerning their familiarity with use of ASCE's Manual 55, *Guide to Employment Conditions for Civil Engineers*. Although a few improvements were made to the 1981 Salary Survey, most questions are the same as other recent ASCE Salary Surveys, permitting easy comparison.

The Summary of Findings in Section II highlights some of the results. A complete listing of the data, tabulated and cross-tabulated as in prior years, comprises Appendix I.

II Summary of Findings

This summary presents some of the more important data and its analysis, as developed from this survey. A more complete discussion can be found in Section IV. Median salaries are used as the basis of comparison, but the 1981 Survey also includes some mean (average) salary results added for this report. Data are included in Appendix I.

The 1981 Salary Survey is based on returns received from 637 organizations representing 33,269 employees. A breakdown of responses is shown in Table 1. By comparison, the two previous survey analyses were based on 894 organizational responses representing 49,527 engineers (1979), 736 organizations, and 40,870 individuals (1977). Almost 40% of the employees represented by this year's sample are publicly employed engineers. It is estimated that the total response represents approximately 20–25% of civil engineers in the United States.

In the two-year period since the 1979 survey, the average combined median entrance salary for all grades increased 20.7% from $25,402 to $30,660. This statistic is computed from the average median entrance salary for each professional grade from I/II through IX in each of six employment categories, and is a good trend-indicator. Construction and design/construct firms were combined into one category for computation purposes so that a comparison with 1979 and prior results could be made, as the categories were not divided prior to this survey. Educational employment is excluded from the calculation. Data from which these figures were computed can be found in Appendix I, Tables 2–7.

TABLE 1.—Number of Responses by Employment Category

Employment category (1)	Number of organizations (2)	Number of individuals (3)
Private employer		
Consulting firms	395	8,907
Construction firms	15	166
Design/construct firms	16	2,392
Railroads, utilities, and industries	17	7,974
Public Employers		
State government departments and agencies	44	10,736
Municipalities, counties, and regional authorities	112	2,447
Education		
12-month contract	4	104
9-month contract	34	543
Total	637	33,269

TABLE 2.—Average Percent Increase of Combined Median Entrance Salaries, for All Grades

	Year					
(1)	1971 (2)	1973 (3)	1975 (4)	1977 (5)	1979 (6)	1981 (7)
Percent Increase	11.4	8.3	19.9	13.6	14.9	20.7

TABLE 3.—Percent Increase of Averaged Median Entrance Salaries by Employment Category, for All Grades

Employment category (1)	Average median entrance salary for 1981, in dollars (2)	Percent increase over 1979 (3)
Consulting firms	31,578	23.7
Construction firms	32,630	24.0[a]
Design/construct firms	33,586	24.0[a]
Railroad, utilities, and industries	33,611	17.7
State government departments and agencies	26,822	17.0
Municipalities, counties, and regional authorities	28,183	20.9

[a]Construction and design/construct firm categories combined for computational purposes in order to compare to 1979 results.

Comparative results for the last decade are summarized in Table 2. By categories of employment, the average median entrance salaries, and the percent increase from 1979, are shown in Table 3. A trend analysis of these same categories and median salaries over a 4-yr period (1977, 1979, and 1981 Salary Surveys) is noted in Table 4.

Additional analyses conducted included a look at overall mean (average) and median salaries by employment categories (the previous comparisons were based on the averaged median salaries for the eight ASCE Professional Grades, in each category). The overall median, excluding education, was $27,117, up from $22,240 in 1979, a 21.9% increase. The overall mean (average) salary, computed in the same fashion, was $29,344. A breakdown by employment categories can be found in Appendix I, Table 19.

Starting salaries for those entering the profession in ASCE Professional Grades I/II for each of the employment categories are shown in Table 5. The average median starting salary was $18,765, a 25% increase over 1979. This is nearly double the percent increase in the previous reporting period.

Regional comparisons of median salaries by employment category and by Professional Grades are included. In the regional analysis, the average of regional median starting salaries (Grade I/II) irrespective of employment category was $16,384. Typically, the Midwest (Region 3) and the Far West (Region 6) had the highest median salaries for engi-

TABLE 4.—Percent Increase of Averaged Median Entrance Salaries by Employment Category between 1977 and 1981, for All Grades

Employment category (1)	Percent Increase of Averaged Median Entrance Salary over Prior Report Period			1977–1981 Total Percent of Increase (5)
	1977 (2)	1979 (3)	1981 (4)	
Consulting firms	16.8	15.7	23.7	67.2
Construction firms	10.7	17.9	24.0[a]	61.9
Railroads, utilities, industries	13.8	18.1	17.7	58.3
State government departments and agencies	14.6	13.1	17.0	51.8
Municipalities, counties, and regional authorities	11.4	9.0	20.9	46.8

[a]Combined results as noted previously.

TABLE 5.—1981 Starting Salaries, Grade I/II

Employment category (1)	Mean starting salary, in dollars (2)	Ranges of Starting Salaries in dollars		Median starting salary, in dollars (5)	Percent Increase in median salary over 1979 (6)
		Low (3)	High (4)		
Consulting firms	17,266	7,400	24,000	17,500	24.6
Construction firms	19,737	12,000	24,500	19,460	30.3[a]
Design/construct firms	17,565	7,800	23,400	18,224	30.3[a]
Railroads, utilities, industries	21,732	19,560	25,680	21,205	23.1
State government departments and agencies	17,215	12,854	22,512	17,340	22.4
Municipalities, counties, and regional authorities	18,432	10,540	28,094	18,940	24.8

[a]Based on combined results.

neers through Grade VI, and these two regions were the ones reporting salaries at or above the overall, national medians for all engineers regardless of grade. In 1979, the Far West (Region 6) was the only region to hold that distinction.

A survey of benefits revealed the trend to increasing fringe benefits was continuing. The overall average cost of fringes as a percent of the base payroll was reported to be 38.94%, up from 36.51% in 1979. Table 6 reviews the trend in fringe benefits for the decade. For comparison purposes, the report of benefit costs by employment categories is shown in Table 7.

General trends in fringe benefit growth can be seen from the overall average costs of various benefits, as reported in Table 8. The trend assessment in the right column suggests that incentive compensation, retirement, medical insurance and "other" benefits are those tending to

TABLE 6.—Average Overall Benefit Cost, as a Percent of Base Payroll for the Decade 1971–1981

(1)	Year					
	1971 (2)	1973 (3)	1975 (4)	1977 (5)	1979 (6)	1981 (7)
Percent of base payroll	30.92	29.55	28.97	34.40	36.51	38.94

TABLE 7.—Average Fringe Benefit Cost, as a Percent of Base Payroll by Employment Category

Employment category (1)	Fringe Benefit Cost as a Percent of Base Payroll			Change in Percent (increase) 1979–1981 (5)
	1977 (2)	1979 (3)	1981 (4)	
Consulting firms	34.2	34.6	36.8	2.2
Construction firms	40.5[a]	42.3[a]	50.7	8.4[a]
Design/construct firms			47.5	5.2[a]
Railroads, utilities, industries	35.2	38.7	51.6	12.9
State government departments and agencies	32.8	33.8	42.6	8.8
Municipalities, counties, and regional authorities	33.5	35.2	40.9	5.7

[a]Construction and Design/Construct Firms were not divided into two categories until 1981.

TABLE 8.—Average Cost of Various Benefits as a Percent of Base Payroll of All Employment Categories

Benefit (1)	Fringe Benefit Cost, as a Percentage of Base Payroll			Increase (+) or Decrease (−)	
	1977 (2)	1979 (3)	1981 (4)	1977–1979 (5)	1979–1981 (6)
Vacation	5.08	5.36	5.04	+	−
Holidays	3.12	3.36	3.21	+	−
Sick leave	3.31	3.38	3.06	+	−
Military leave	1.75	1.82	1.39	+	−
Incentive compensation	8.39	9.81	10.03	+	+
Retirement	7.93	8.73	9.63	+	+
Social Security	7.63	7.59	8.37	−	+
Professional dues	1.49	1.40	1.32	−	−
Insurance, medical	3.96	3.99	4.61	+	+
Insurance, life	1.46	1.44	2.01	−	+
Education	1.00	1.00	.89	0	−
Separation allowance	2.35	3.63	2.00	+	−
Other	2.97	3.22	3.60	+	+

increase. Life insurance took a big jump in 1981, also. These five items were almost 30% of base payroll or about 77% of the total benefits cost.

Concerning ASCE's Manual 55, *Guide to Employment Conditions for Civil Engineers*, 38.4% of the employers indicated they were familiar with the Manual, up from 34.7% in 1979 but slightly below the 39.9% who said they knew of it in 1977. Within the employment categories, consulting firms and educators were most likely to know about it, while state government and railroad, utilities, and industries were least likely. Among those familiar with the manual, over 78% felt their general employment conditions and work atmosphere were similar or better than discussed in Section 1 of the manual, nearly 68% felt their benefits were similar or better than the suggested programs in Section 4, and almost 54% said their salary structure was similar or better than Manual 55's Section 3, Recommended Salary Ranges. Compared to 1977 and 1979 responses to the same questions, these totals haven't changed much, but there has been a dramatic shift toward employers who feel their overall employment conditions are *better* than Manual 55 recommends; between 46% and 61% of the positive responses were in the "better" category this time, whereas in the last two polls the "better" answers ranged between 3% and 20%.

Tabulations on education levels and registration status were included, as in previous polls. Observations include the expected concentration of Ph.D degrees in consulting and education. Over 21% of the M.S. degrees were found in the railroad, utilities, and industries employment category, a bias not seen in the last two reports. Over 38% of the 33,269 engineers represented in the survey were registered professional engineers, including about 71% of the educators and 64% of the consultants responding, and nearly 45% of the publicly employed engineers.

Although over 47% of all organizations have an understanding with employees about their Professional Grade classification, only about 15% say they use the ASCE Grade Descriptions in the organization. Over the last several surveys, a slow but steady increase has been observed in the percentage of organizations that have established some type of classification system.

III General Background

Sampling Procedure

As in previous years, the data presented in this report were obtained from representative sources on a sampling basis. Questionnaires

were mailed to 10,488 employers in November, 1981 based on mailing lists compiled and updated by ASCE with assistance from local sections and branches. The questionnaire and other material sent to employees is shown in Appendix II. A 6.1% return was achieved after rejected questionnaires were eliminated. Responses are not necessarily uniform or representative of the entire profession. Some regional responses may be statistically invalid. Overall, median salary data obtained in this manner in the past by ASCE Salary Surveys has correlated well with median salary information provided by a large sample of ASCE members responding to the Society's periodic "Survey of the Profession." The data in this salary report are solely indications of current salary and benefit levels at the time the survey was conducted, and should not be considered as recommended salary and benefit levels.

Employment Categories and Regions

Eight employment categories were used, as follows:

1. *Private Employer*

   Consulting Firms
   Construction Firms
   Design/Construct Firms
   Railroads, Utilities, Industries

2. *Public Employers*

   State Government Departments and Agencies
   Municipalities, Counties, and Regional Authorities

3. *Education*

   9-month contract
   12-month contract

Design/construct firms were separated from general construction firms in 1981; in previous years, they had been combined. Analysis of data in this report required that they be combined again for computational purposes to allow comparison with previous years. State government departments and agencies refer to transportation, highway, public works, or similar state organizations. In general, the categories are the same as have been used in previous surveys. Education responses have been broken into a 9-month or 12-month contract basis since 1975; before that only one education category was used.

Seven regions were considered for regional analysis, with the same boundaries as used in prior surveys. These regions can be summarized as follows:

Region	*Territory*
1	New England
2	Middle Atlantic
3	Middle West
4	South
5	West (Plains)
6	Far West
7	Foreign (outside Continental U.S.)

Region 7 includes Hawaii and Alaska, as well as Guam, Puerto Rico, the Virgin Islands, the Panama Canal Zone, and miscellaneous responses from others outside the country. A map showing the six regions in the continental U.S. is included as Fig. 1 in Appendix 1. Employment category and regional data were developed from category and state/region codes entered by the employer.

Professional Grade Descriptions

ASCE's professional grade descriptions were used as the basis for determining expertise or level of responsibility for comparison of salaries in the survey, rather than years of experience. The grade descriptions have been used by ASCE for this purpose for a number of years. The system now in use is as revised in 1975 by ASCE's Committee on Employment Conditions and National Society of Professional Engineer's (NSPE's) Professional Employment Committee, working jointly. The resulting system is compatible with NSPE classifications and correlates with Federal G.S. Grades, so data reported in this survey can be compared easily with NSPE surveys and the Department of Labor's Bureau of Labor Statistics information. A summary chart showing the Grade Descriptions and a table relating the ASCE Grades and Federal G.S. Grades are included in Appendix III. A brief discussion on the use and limits of ASCE Professional Grade Descriptions has been included.

Special Questions

Employers were again asked about their familiarity with ASCE's Manual 55, *Guide to Employment Conditions for Civil Engineers*, and, if they were familiar with it, how employment conditions within their organization compared to the suggestions and recommendations in the Manual. There was also a question inquiring about the use of ASCE's Professional Grade Descriptions in the organization. Both inquiries had

appeared in previous surveys to provide a means for the Committee on Employment Conditions to gage employers' use of these tools.

IV Comments on Data, Analysis, and Presentation

Most of the comparisons and trend analyses are based on median salary. The median is that number with 50% of the sample response lower and 50% higher. The middle 50% range is determined by eliminating the upper 25% and the lower 25%. The total range represents the lowest and highest figures reported, and the averaged result is the mean (average) figure for all responses to the category. Means (averages) tend to differ from medians most noticeably with increase in professional grade and when considering maximum salary rates for the various grades, as might be predicted. Means (averages) were added to the reporting this year to provide another evaluation tool.

Reports by employment category (Tables 11–16 in Appendix I) show mean, median, middle 50% range, and total salary range for each professional grade for both entrance salaries into that grade and for maximum salaries in that grade. The difference between the low end of the entrance range and the high end of the maximum range is the total range of salaries paid for that grade. The median salaries for all grades were averaged and compared in various ways with previous data in Section II, "Summary of Findings." Growth trends are shown by graphs of median salaries for 1981 and several prior report periods in Figs. 4–9 of Appendix I.

In the past, the median salary has been assumed to be a reasonably accurate representation of salary rates for a category. Comparison of salary data reported anonymously by individual members of the Society in the extensive 1976 Survey of the Profession, plus the 1975 and 1977 salary survey data provided by employers, indicates the assumption was accurate for that period. Similar prior comparisons have yielded similar results. No attempt was made to weight medians according to the number of employees represented in a group or region.

Salary Trends.—Considering Table 2, it can be seen that the biennial percent increase of median entrance salaries was lower at the beginning of the decade than in recent years. The 1969 figure was 15.4%. Wage and price controls imposed by the Federal goverment during part of the 1971 and 1973 periods influenced engineer salaries during that interval. The 1975 increase was comparatively high and probably represented a rebound following removal of wage and price controls. Strong, steady

percent increases were found by the 1977 and 1979 surveys, which were attributed to concern within the profession about previous low salary levels and the double-digit inflation rate at that time. The large percent increase found by the 1981 survey is believed to reflect both the continued high inflation rate through 1980 and much of 1981, and a relatively strong demand for civil engineers, coupled with a limited supply of engineering talent.

The trends by employment category noted in Table 4 as indicated by percent increase in median entrance salaries seems to indicate strong demand, as reflected by higher salary levels, in consulting and construction. The big jump in the municipalities, counties, and regional authorities category may be a rebound from the comparatively low percent increases found in 1977 and 1979.

Starting salaries, which are largely a function of the balance of supply and demand and which also serve as a benchmark salary rate for higher grades, took a big leap (median starting salary up 25% over 1979). For comparison purposes, the increases of median starting salaries measured was 13.4% in 1979; 12.9% in 1977; 16.6% in 1975; and 6.6% in 1973. These results seem to indicate demand is high and supply limited. The profession-wide jump (Table 2) in salaries may be related in part to a "move-up" effect triggered by the leap in starting salaries and the resulting pressures and adjustments in salary of more experienced personnel, which higher starting salary rates often require.

Job Classifications.—Many of the employers who responded to this survey have grade classification systems of their own, which differ from the ASCE professional grades, or have no formal classification system. Interpretation and interpolation were necessary for these employers to categorize their engineer employees according to ASCE grades for this report. It is possible that widely divergent figures reported in some of the total ranges are the result of misinterpretation of grade definitions, rather than marked disparity in salary scales. It is believed that consideration of mean and median salaries and the middle 50% range, as explained previously, help reduce the effects of this sort of distortion.

Education.—Educational employment was excluded from many of the comparisons in Section II. Education salaries were surveyed and are reported along with related data in Tables 17 and 18 of Appendix I. Exclusion of education from the comparisons is not intended to reflect unfavorably upon this employment category; it merely recognizes that different economic forces apply to educational employment. Data had been handled this way in previous reports, and this report continues that approach.

Benefits.—Fringe benefits have steadily become a larger and larger portion of total compensation, increasing from about 3% of base payroll in 1927 to the present level. Benefits surveyed in 1981 were the same ones monitored since 1975. Changes made for that 1975 survey included adding a "military leave/jury duty" category, consolidating the retirement category and eliminating an overtime category. Social security, unemployment, and workmen's compensation are taxes or insurance required by law, not optional benefits, but have historically been included on the list. It was found in past surveys that benefit data were easiest to handle when reported as a percentage of base payroll.

Since not all employers categorize benefits according to the list used in the survey, data had to be edited when reported values were for combinations of categories or when obviously skewed data resulting from probable misunderstanding about a category was received. Skewed data were discarded, and combined category totals (such as combined medical and life insurance or combined vacation, holiday and sick leave) were distributed equally into the survey categories, to avoid distortions of any one category. Table 31 of Appendix I was the result.

Incentive Compensation.—The value of incentive compensation paid in 1980 was surveyed by grade and employment category. Incentive compensation was defined as cash bonuses or profit sharing, or both. Employers entered these figures on the questionnaires. Results are shown in Table 32 of Appendix I. Average total cash compensation by grades and employment categories can be computed by taking the average of the entrance and maximum salary rates reported for each grade for the individuals who received incentive compensation and adding in the dollar value of the incentive compensation. A review of the questionnaire form in Appendix II should make this clearer.

Regional Analysis.—Regions were defined elsewhere and are illustrated in Appendix I. In considering regional analyses, such as those developed in Table 10 and Tables 22–30 of Appendix I, it is necessary to have some indication of the origin of the data and their statistical validity. Table 1 shows the overall total by employment categories. The Regional Response Chart (Table 9) shows the regional breakdown. Conclusions can be drawn concerning the statistical validity of responses for certain employment categories in certain regions.

V Related Reference Sources

In the middle of even-numbered years, as opposed to the ASCE Salary Survey in odd-numbered years, the Engineering Manpower Commission of the American Association of Engineering Societies (formerly the Engineers Joint Council) collects basic salary information on engineering graduates for its biennial reports on the "Professional Income of Engineers." This report correlates salary with the number of years since receipt of the B.S. degree, rather than with grade descriptions. NSPE conducts periodic salary surveys based on professional grade descriptions. The College Placement Council conducts an annual survey of starting salary offers to bachelor degree candidates in civil engineering. Annual salary data are available from the Bureau of Labor Statistics from its National Survey(s) of Professional, Administrative, Technical, and Clerical Pay. The Scientific Manpower Commission periodically publishes "Salaries of Scientists, Engineers, and Technicians," collected from a variety of sources. Also, private firms conduct salary research. Many of these surveys are conducted at regular intervals using similar formats each time, so data can be compared from period to period and trends determined.

ASCE's Manual 55, *Guide to Employment Conditions for Civil Engineers*, contains recommended salary ranges based on multiples of starting salaries for the various ASCE professional grades. In accordance with the recommendations in Manual 55, many ASCE sections and branches conduct annual local salary surveys to establish a current base entrance salary along with adjustment indices for their areas to use with the Manual 55 salary curves. This listing is not intended to be complete, but does serve to illustrate other sources of salary information to compare with or supplement this report.

VI Acknowledgments

The number of employer responses and the corresponding large sample of employees represented in this report is due in part to the efforts of the ASCE sections and branches throughout the country to improve the mailing lists for their particular states. Their work is vital to the success of the Survey.

The Committee on Employment Conditions is grateful to all who supplied the basic data that made this report possible. The continued heavy demand for copies of ASCE salary surveys is evidence of the usefulness of these periodic analyses to civil engineering employers and

employees alike. We are pleased to be able to help with this worthwhile member service and will appreciate suggestions and comments for improvements in future surveys.

Respectfully submitted,
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TABLE 9.—Regional Response Chart

Employment category (1)	Regions													
	I		II		III		IV		V		VI		VII	
	O (2)	I (3)	O (4)	I (5)	O (6)	I (7)	O (8)	I (9)	O (10)	I (11)	O (12)	I (13)	O (14)	I[a] (15)
Consulting	–	–	58	1,677	81	2,019	86	1,368	86	1,421	80	2,365	5	65
Construction	–	–	2	38	9	105	2	7	–	–	2	16	–	–
Design/construct	–	–	–	–	8	411	3	5	1	3	4	1,973	–	–
Railroads, utilities, industries	–	–	–	–	8	122	2	7,485	4	106	3	261	–	–
State government departments and agencies	–	–	7	3,858	8	1,466	10	1,790	12	2,548	6	923	1	151
Municipalities, counties, regional authorities	1	2	15	303	44	767	12	82	15	252	24	1,021	1	20
Education 9-month contract	–	–	7	108	9	154	10	164	3	35	4	72	1	12
Education 12-month contract	–	–	–	–	1	60	1	14	2	30	–	–	–	–
Total organizations	1		89		168		126		123		123		8	
Total individuals		2		5,932		5,014		10,915		4,395		6,631		248

[a]O = Organizations; I = Individuals.

Appendix I.—Tables and Figures

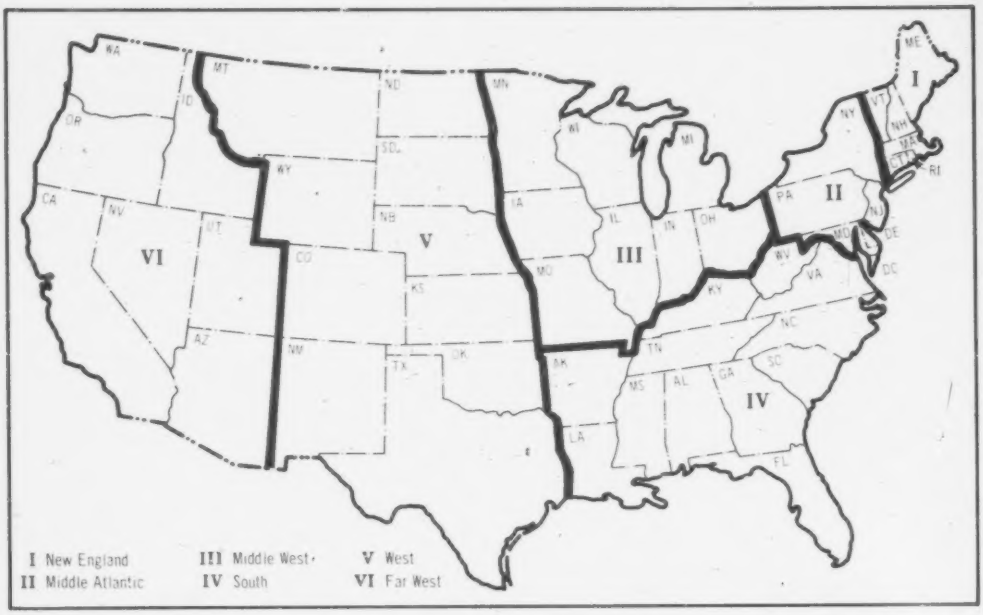

FIG. 1.—Map of Regions used for Comparative Purposes in this Study

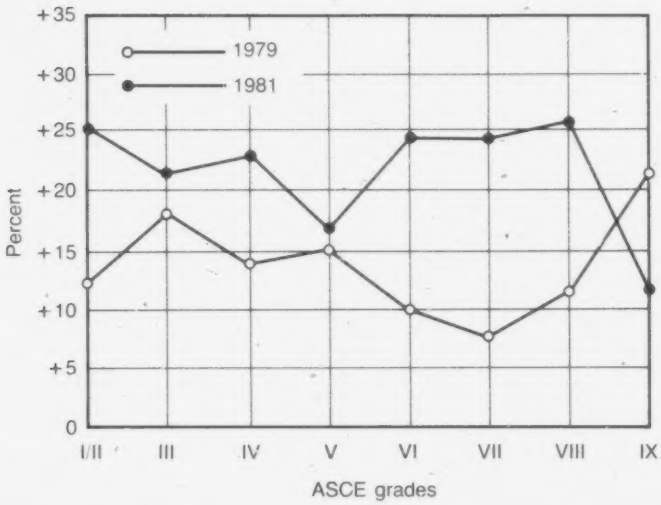

FIG. 2—Change in Entrance Salary Medians for Combined Employment Categories, 1979–1981

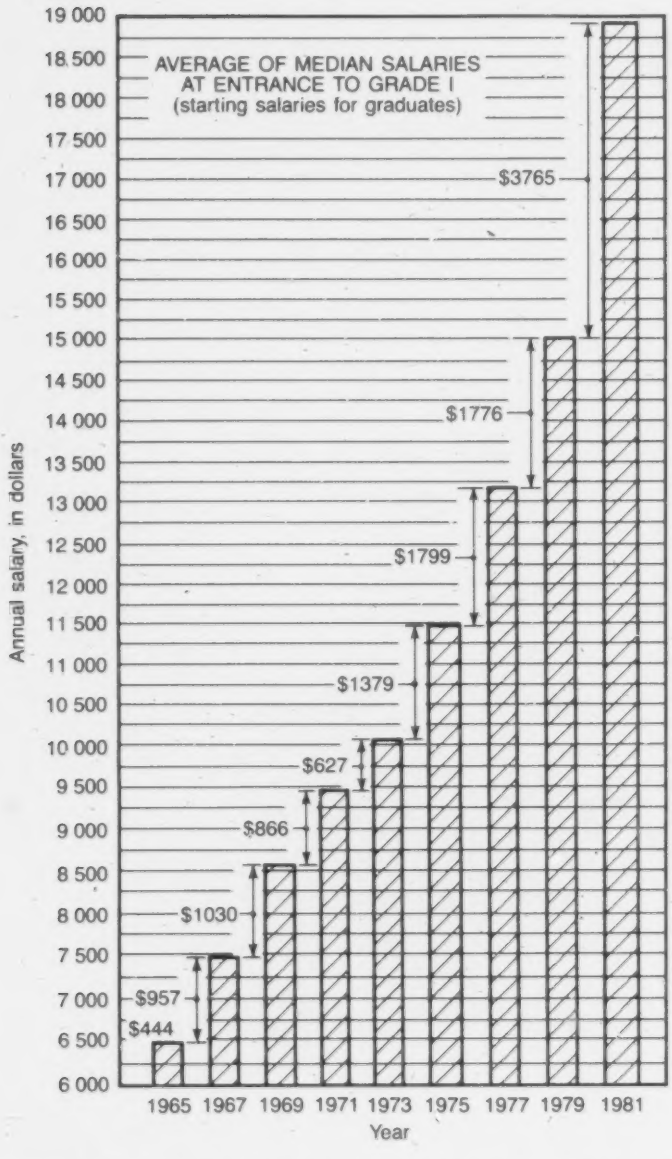

FIG. 3—Comparison of Starting Salaries for New Graduates (Grade I/II), 1965–1981

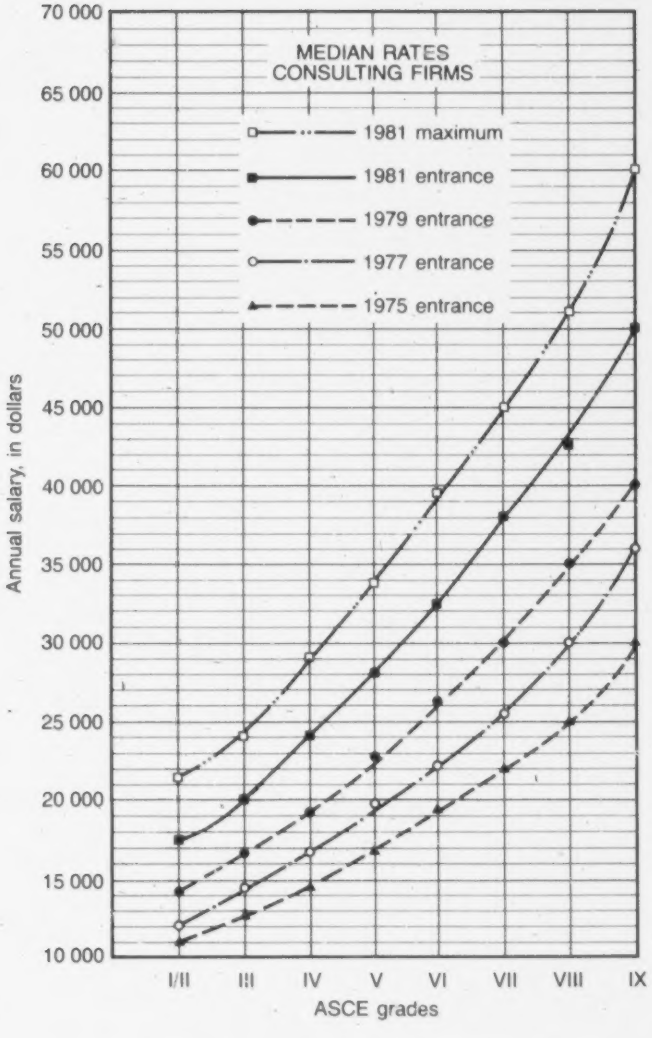

FIG. 4.—Median Salary Rates: Consulting Firms

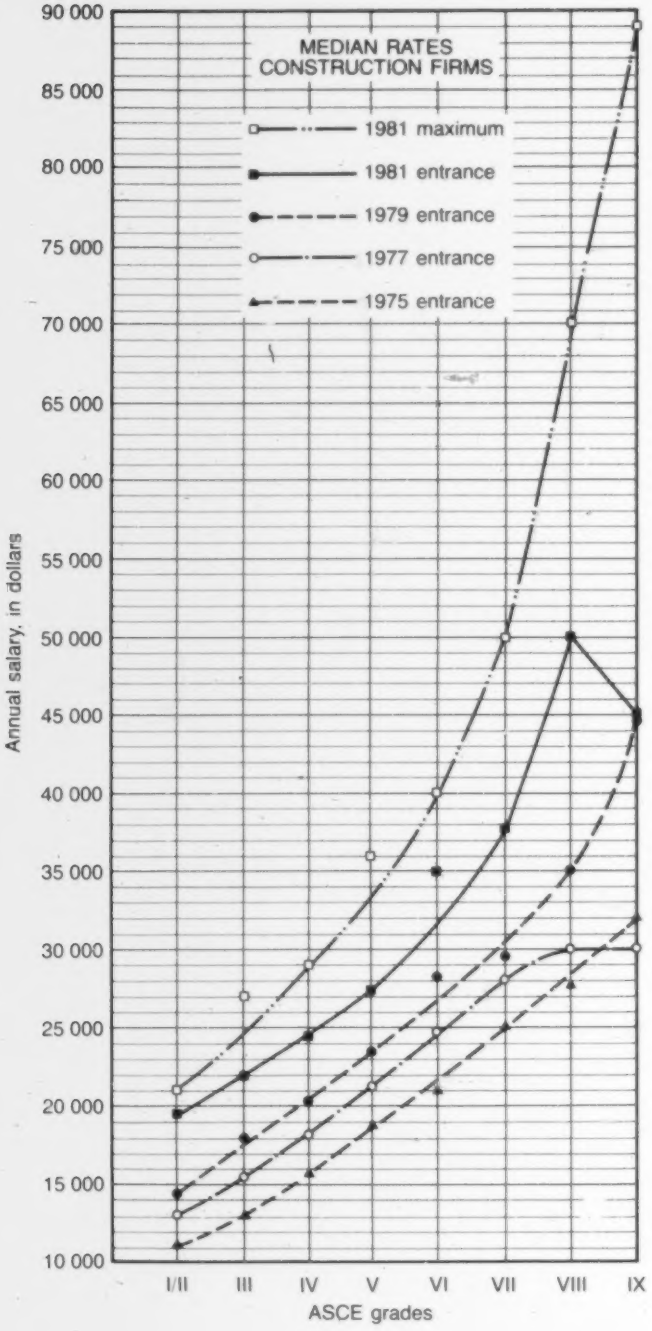

FIG. 5.—Median Salary Rates: Construction Firms

TABLE 10.—Regional Relationships (Ratio of Regional to National Entrance Salary Medians for Combined Employment Categories[a] in Each ASCE Grade)

Region (1)	Grades I/II (2)	III (3)	IV (4)	V (5)	VI (6)	VII (7)	VIII (8)	IX (9)
Northeast (I)						27,588 0.81	34,332 0.90	
Middle Atlantic (II)	16,766 0.99	18,594 1.00	22,753 0.98	26,086 0.99	29,873 0.97	34,548 1.01	44,776 1.18	41,590 0.96
Middle West (III)	18,350 1.09	20,024 1.07	24,079 1.07	26,815 1.02	31,776 1.03	34,761 1.02	40,147 1.06	42,981 1.00
Southern (IV)	16,921 1.00	17,083 0.91	21,813 0.94	25,643 0.97	30,812 1.00	36,374 1.07	43,049 1.13	44,754 1.04
Plains (V)	17,040 1.01	18,619 1.00	22,763 0.98	28,291 1.07	30,780 1.00	36,810 1.08	33,515 0.88	41,026 0.95
Western (VI)	18,286 1.08	19,622 1.05	24,773 1.07	26,282 1.00	33,897 1.11	35,400 1.04	40,805 1.07	47,958 1.26
Foreign (VII)	13,643 0.81	17,544 0.94	21,192 0.92	24,114 0.92	26,338 0.86	31,684 0.93	28,136 0.74	39,000 0.90
Overall Median dollars	16,384	18,581	23,000	26,205	30,594	33,880	37,822	42,884

[a]The eight employment categories outlined elsewhere in the report were combined for each Grade in each region.
Note: All medians shown are expressed in annual dollars.
The formula of ratio is overall, in dollars divided into regional median, in dollars equals quotient in decimal.

TABLE 11.—Consulting Firms—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1979–1981, as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1979–1981, as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
I/II	1,336	17,226	17,500	+24.6	16,000	19,000	7,400	24,000	21,906	21,320	+21.8	19,000	24,600	10,400	35,000
III	1,320	20,323	20,005	+19.0	18,000	22,800	10,800	27,500	25,060	24,000	+20.0	22,000	28,000	14,560	39,000
IV	1,523	23,870	24,000	+24.7	21,878	26,000	15,000	40,000	29,582	29,000	+20.8	26,000	32,000	18,000	46,800
V	1,500	27,960	28,000	+22.8	25,000	30,000	16,640	50,000	34,309	33,900	+21.8	30,000	38,000	18,720	33,333
VI	1,429	32,615	32,400	+23.2	28.800	36,000	20,000	50,000	40,108	39,600	+23.0	34,000	45,000	22,000	46,010
VII	817	38,175	38,000	+26.7	33,600	41,700	19,000	80,000	46,195	45,000	+23.0	40,000	52,202	21,000	100,000
VIII	538	43,930	42,720	+22.1	39,000	49,860	24,500	140,000	53,865	51,000	+20.6	45,600	65,000	27,000	150,000
IX	394	50,274	50,000	+25.0	40,000	60,000	24,000	100,000	55,064	60,000	+11.1	50,000	83,958	24,000	200,000
Average			31,578							37,977					

Note: The average of median entrance rates, for all grades, in 1979 was $25,523; the percentage chanage from 1979–1981 is 23.7%.

TABLE 12.—Construction Firms—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1979–1981, as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1979–1981, as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
I/II	19	19,737	19,460	+34.6	18,000	22,000	12,000	24,500	21,648	21,000	+05.4	20,000	21,000	14,000	27,240
III	20	22,636	22,000	+22.2	18,000	23,580	14,000	33,800	27,392	27,000	+15.4	25,000	28,600	15,000	39,230
IV	23	23,997	24,500	+20.8	23,986	25,000	15,000	30,000	27,831	29,000	+07.4	26,986	30,000	20,000	31,000
V	41	28,026	27,322	+16.8	24,000	30,000	20,000	40,000	37,725	36,000	+15.4	35,000	37,500	30,000	47,070
VI	22	34,332	35,000	+24.4	29,580	37,000	25,000	42,000	42,822	40,000	+04.8	39,910	40,000	34,060	62,630
VII	13	36,420	37,760	+28.0	33,000	40,000	30,000	40,000	48,762	50,000	+19.1	45,000	50,000	42,000	56,960
VIII	15	50,768	50,000	+42.8	40,000	56,380	35,000	72,000	60,377	70,000	+51.5	48,000	70,000	45,000	230,000
IX	13	48,000	45,000	+00.6	40,000	45,000	39,000	70,000	43,666	89,000	+36	75,000	100,000	55,000	250,000
Average			32,630							45,250					

Note: The average of median entrance rates, for all grades, in 1979 was $26,692; the percentage change from 1979–1981 is 22.3%.

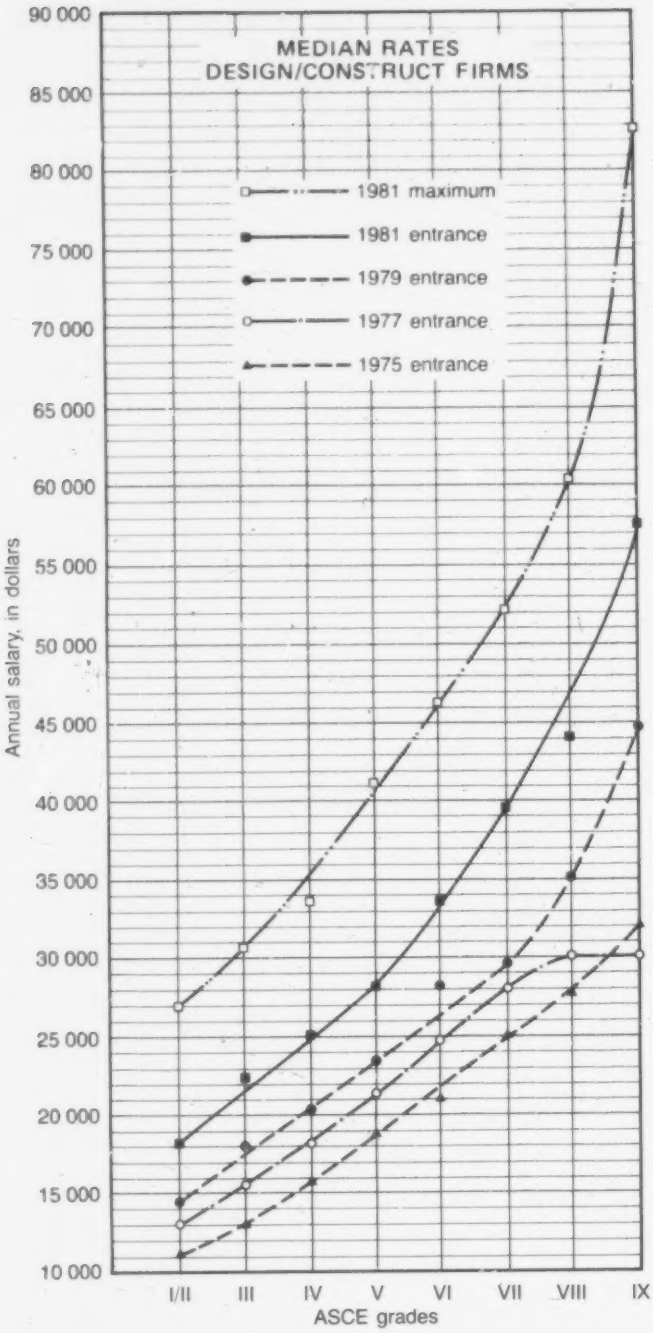

FIG. 6.—Median Salary Rates: Design/Construct Firms

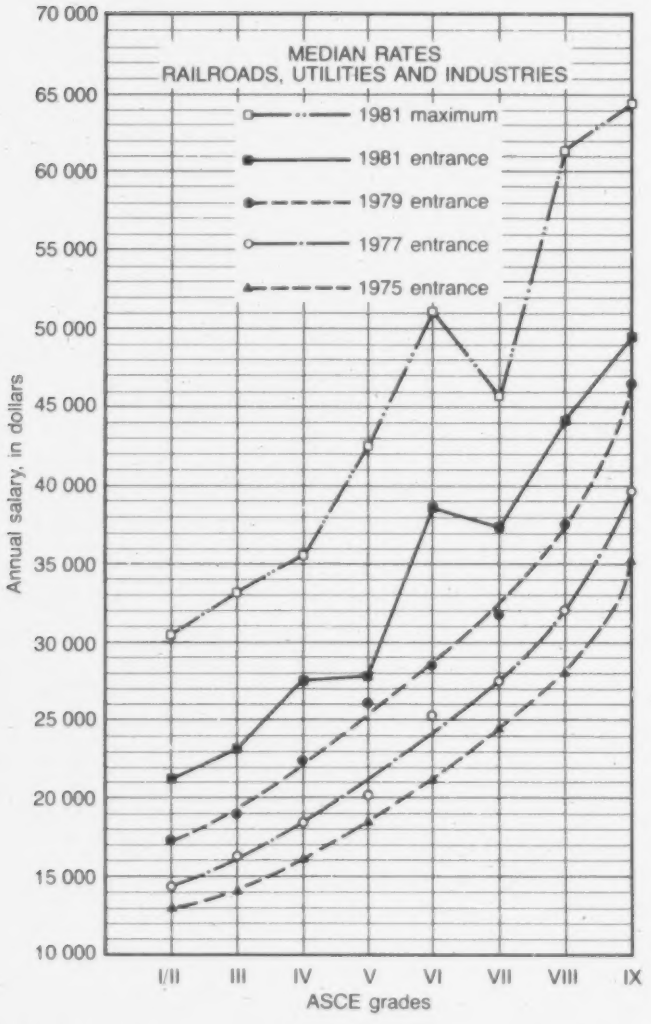

FIG. 7.—Median Salary Rates: Railroad, Utilities, Industries

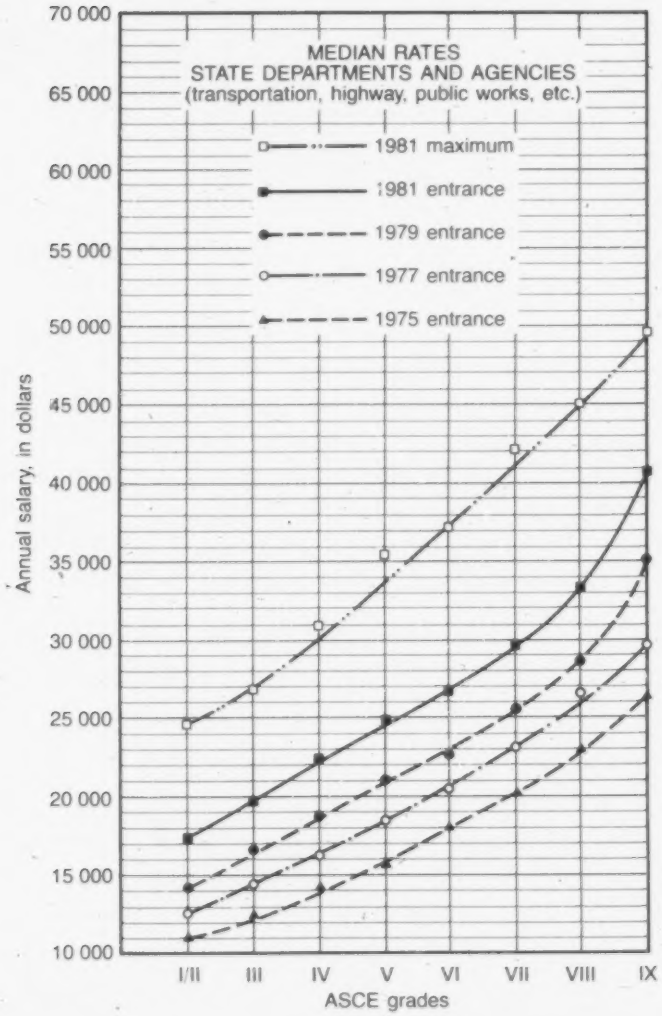

FIG. 8.—Median Salary Rates: State Government Departments and Agencies

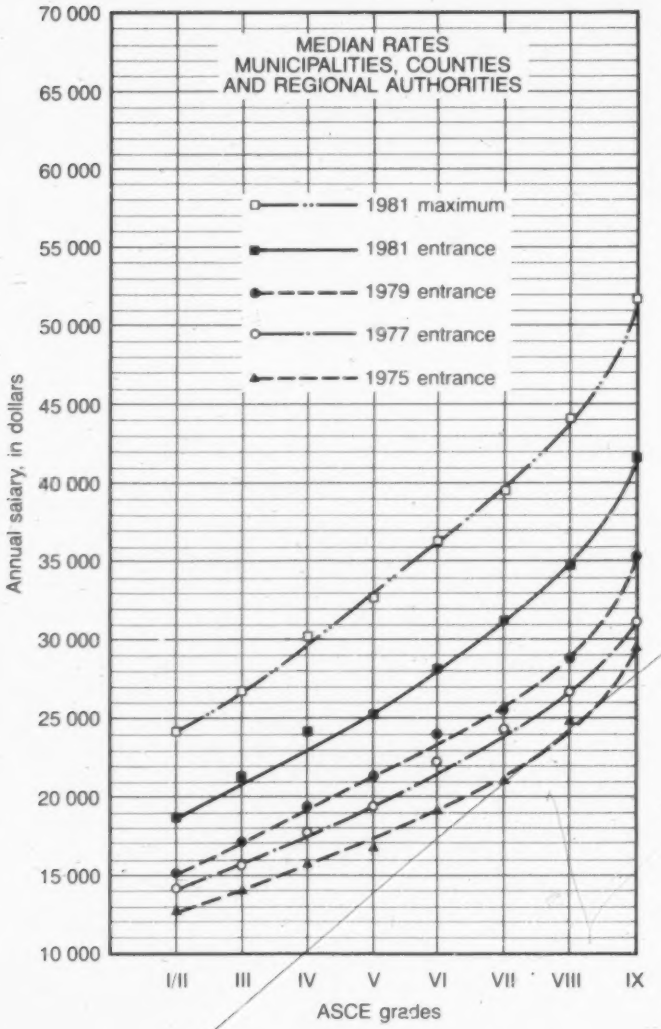

FIG. 9.—Median Salary Rates: Municipalities, Counties, and Regional Authorities

TABLE 13.—Design/Construct Firms—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1979–1981, as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1979–1981, as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
I/II	442	17,565	18,224	+26.0	14,560	20,100	7,800	23,400	25,030	27,000	+35.5	22,539	28,860	12,064	33,000
III	408	20,652	22,380	+24.3	16,000	23,371	12,000	26,000	28,856	30,960	+32.3	20,000	33,360	15,000	40,000
IV	538	23,644	25,169	+24.1	21,320	25,620	12,000	32,000	33,143	33,746	+25.0	31,200	37,940	13,000	48,000
V	498	29,901	28,245	+20.7	26,000	29,280	24,960	45,000	40,508	41,160	+31.9	36,723	42,980	27,560	53,000
VI	367	33,998	33,586	+19.4	30,000	35,760	27,872	41,280	47,591	46,383	+21.5	43,260	51,000	30,000	62,000
VII	101	38,845	39,689	+34.5	33,280	40,000	30,000	48,000	53,044	52,000	+23.9	47,640	55,000	33,280	73,500
VIII	28	45,211	44,000	+25.7	39,300	46,685	34,620	70,000	60,595	60,344	+30.6	52,980	65,800	30,000	85,000
IX	10	53,956	57,400	+28.3	38,100	60,000	37,440	70,000	53,222	82,588	+26.2	60,320	91,900	50,003	100,000
Average			33,586							46,772					

TABLE 14.—Railroads, Utilities, and Industries—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1979–1981, as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1979–1981, as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
I/II	1,096	21,732	21,205	+23.1	19,980	22,560	19,560	25,680	30,230	30,504	+33.9	28,400	31,800	24,350	35,364
III	820	23,207	23,072	+21.4	20,800	25,500	18,805	27,207	32,664	33,060	+28.1	28,560	34,968	27,889	38,256
IV	1,892	26,046	27,612	+24.0	24,090	28,710	19,767	30,192	35,713	35,558	+21.7	30,000	40,488	24,960	43,992
V	1,671	29,296	27,940	+07.5	25,200	32,940	22,140	36,780	41,387	42,540	+32.0	35,640	44,934	30,649	51,900
VI	1,580	36,636	38,560	+35.9	32,940	40,416	23,460	44,880	49,431	51,030	+36.7	43,915	51,900	34,140	67,068
VII	544	38,510	37,176	+17.3	30,180	40,000	27,889	60,970	49,424	45,640	+09.5	43,500	55,752	33,714	75,753
VIII	258	42,902	44,080	+17.7	33,183	44,700	32,400	54,672	61,339	61,080	+22.2	49,775	64,728	47,905	82,008
IX	113	48,981	49,250	+06.0	48,300	49,250	40,000	53,916	68,906	64,186	+07.0	64,186	79,320	51,250	80,868
Average			33,611							45,449					

Note: The average of median entrance rates, for all grades, in 1979 was $28,553; the percentage change from 1979–1981 is 17.7%.

TABLE 15.—State Government Departments and Agencies—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1979–1981, as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1979–1981, as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
I/II	1,897	17,215	17,340	+22.4	16,248	18,226	12,854	22,512	24,522	24,752	+23.7	22,921	25,932	18,600	30,444
III	2,793	19,535	19,544	+16.6	17,916	21,036	13,860	25,812	27,304	26,832	+19.4	25,064	29,212	21,672	33,828
IV	2,489	22,164	22,464	+18.9	19,788	23,566	15,288	29,604	30,883	30,936	+21.3	27,984	32,580	24,816	39,240
V	1,899	25,075	24,900	+18.6	21,672	28,108	16,860	33,996	34,977	35,616	+20.9	31,200	36,900	26,624	43,666
VI	889	27,974	26,768	+16.6	24,901	30,729	16,822	39,689	39,099	38,313	+19.5	35,256	43,666	28,080	51,596
VII	490	31,733	29,601	+15.4	28,284	34,400	19,084	49,029	43,448	42,120	+21.5	39,200	47,052	28,288	57,910
VIII	237	34,486	33,164	+14.7	30,295	36,000	22,584	48,228	47,273	45,009	+14.5	42,344	50,047	30,656	64,272
IX	42	43,010	40,800	+16.3	36,048	46,670	34,080	65,000	53,510	49,858	+17.3	46,898	60,000	42,500	75,000
Average			26,822							36,679					

Note: The average of median entrance rates, all grades, in 1979 was $22,924; the percentage change from 1979–1981 is 17.0%.

TABLE 18.—Salaries of Engineers in Education, 1981[a]—Median Salary by Rank, Type of Institution, and Months on Contract

Title (1)	Engineering school PhD program, in dollars (2)	Engineering school non-PhD program, in dollars (3)	Technical school, in dollars (4)
(1) 9–10 Month Contract			
Professor	34,050	31,350	26,900
Associate professor	26,500	24,350	23,050
Assistant professor	22,600	20,850	19,900
Instructor	17,700	18,200	17,550
Researcher	22,850	NA	NA
Administrator	39,000	31,250	26,500
(2) 11–12 Month Contract			
Professor	40,300	26,750	29,750
Associate professor	32,150	32,000	24,400
Assistant professor	28,450	31,500	21,150
Instructor	21,250	25,150	21,400
Researcher	22,250	26,850	30,000
Administrator	44,900	39,750	30,200

[a]"Salaries of Engineers in Education, Special Report, 1981" survey report of Engineering Manpower Commission of the American Association of Engineering Societies, Inc.

Note: These figures are *medians* of all salaries reported in the 1981 Engineering Manpower Commission salary survey. In some cases, the data above are based on a small number of salaries reported.

TABLE 20.—Annual Federal Salary Rates

G.S. grade (1)	1979 rate, step 1, in dollars (2)	1981 rate, step 1, in dollars (3)	Change, as a percentage (4)	ASCE grade (5)
5	14,618**	16,278**	11.4	I/II
7	18,101**	20,170**	11.4	
9	21,011**	23,371**	11.2	III
11	22,672	25,138	10.9	IV
12	24,703	28,245	14.3	V
13	29,375	33,586	14.3	VI
14	34,713	39,689	14.3	VII
15	40,832	46,685	14.3	VIII
16	47,889	54,755	14.3	IX
17	56,099*	64,142*	14.3	IX
18	65,750*	75,177	14.3	IX

**Salary rates adjusted for Professionals in 800 Engineering Series

TABLE 16.—Municipalities, Counties, and Regional Authorities—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1979–1981, as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1979–1981, as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
I/II	483	18,432	18,940	+24.8	16,935	20,009	10,540	28,094	24,117	24,183	+23.0	21,100	25,656	14,957	52,824
III	599	21,136	21,340	+25.2	19,094	22,788	13,368	27,771	27,037	26,856	+23.0	25,129	29,040	18,978	34,528
IV	448	24,044	24,131	+24.3	21,408	26,108	16,499	32,640	30,150	30,207	+23.8	28,000	32,640	17,650	38,052
V	405	25,343	25,253	+19.3	22,956	28,415	11,172	33,533	32,298	32,748	+22.3	28,718	35,940	18,676	41,489
VI	262	28,505	28,176	+17.4	25,326	31,533	18,423	38,816	36,449	36,198	+22.3	33,773	39,972	26,900	48,233
VII	150	31,701	31,232	+22.2	27,588	35,000	19,860	45,570	39,997	39,500	+21.7	33,740	43,980	23,177	67,551
VIII	77	35,107	34,794	+20.3	30,684	38,000	20,000	54,648	45,539	44,000	+25.0	40,260	48,819	30,000	77,748
IX	23	42,322	41,602	+18.2	32,500	45,900	30,000	63,537	55,070	51,767	+19.9	45,700	61,799	37,440	86,652
Average			28,183							35,682					

Note: The average of median entrance rates, for all grades, in 1979 was $23,319; the percentage change from 1979–1981 is 20.9%.

TABLE 17.—Education—Annual Salaries, in Dollars

ASCE grade (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1979–1981, as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1979–1981, as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
(1) 9–10 Month Contract[a]															
I/II	5	10,522	10,522	+31.5	9,044	9,044	9,044	12,000	18,948	18,948	+89.5	15,000	15,000	15,000	22,896
III	27	15,952	15,500	+10.7	13,200	17,300	10,000	23,333	19,817	20,000	+16.7	17,300	22,000	13,850	26,400
IV	104	22,451	22,000	+22.2	20,000	24,000	15,000	33,000	26,534	25,000	+16.8	23,861	28,000	18,000	40,000
V	143	25,027	24,527	+20.8	23,000	27,000	16,000	35,000	31,213	30,250	+16.4	28,000	33,500	22,000	45,000
VI	207	29,873	29,500	+18.2	26,000	31,000	17,000	41,228	38,253	38,000	+16.6	35,000	42,100	25,000	50,085
VII	44	37,102	35,800	+19.3	31,600	36,885	28,000	48,647	41,771	40,154	+12.5	35,000	49,810	29,520	60,000
VIII	10	35,833	40,000	+25.0	30,000	40,000	20,000	45,000	49,026	50,000	+19.1	43,000	54,966	36,850	60,000
IX	3	34,333	38,000	+17.1	25,000	38,000	25,000	40,000	46,000	50,000	+15.6	33,000	50,000	33,000	55,000
Average			26,981							34,044					

(2) 11–12 Month Contract[b]

I/II	1	9,000	9,000	—	9,000	9,000	9,000	9,000	12,000	12,000	—	12,000	12,000	12,000	12,000
III	2	18,660	18,660	+43.5	15,000	15,000	15,000	22,320	18,000	18,000	+12.5	18,000	18,000	18,000	18,000
IV	16	26,933	28,800	+76.1	22,000	28,800	22,000	30,000	35,046	33,840	+68.3	33,300	33,840	33,300	38,000
V	32	28,885	31,390	+52.2	30,780	32,000	20,000	32,760	36,400	37,200	+39.4	35,400	39,000	26,000	45,200
VI	29	37,700	37,860	+30.1	36,000	37,860	36,000	39,240	49,300	48,000	+34.9	43,000	48,000	43,000	56,900
VII	14	44,503	42,150	+40.5	40,000	42,150	40,000	51,360	51,500	45,000	+23.3	45,000	45,000	45,000	58,000
VIII	6	42,000	42,000	—	26,000	42,000	26,000	58,000	47,500	47,000	+03.3	32,000	47,000	32,000	63,500
IX	4	38,500	38,500	−03.8	32,000	32,000	32,000	45,000	44,000	44,000	−12.0	36,000	36,000	36,000	52,000
Average			31,045							35,630					

[a]Average of median entrance rates in 1979, for all grades, was $22,465; percent change from 1979–1981 is 20.1%.
[b]Average of median entrance rates in 1979, for all grades, was $24,847; percent change from 1979–1981 is 24.9%.

TABLE 19.—Combined Grades Annual Salaries, by Employment Category—Annual Salaries, in Dollars

ASCE category (1)	Number of individuals (2)	ENTRANCE RATES							MAXIMUM RATES						
		Average salary (3)	Median salary (4)	Change from 1979–1981, as a percentage (5)	Middle 50% Range		Total Range		Average salary (10)	Median salary (11)	Change from 1979–1981, as a percentage (12)	Middle 50% Range		Total Range	
					Low (6)	High (7)	Low (8)	High (9)				Low (13)	High (14)	Low (15)	High (16)
CONSU	8,915	30,001	27,000	+23.3	21,000	36,780	7,400	140,000	36,608	33,850	+24.9	25,740	45,000	10,400	200,000
CONST	166	31,688	29,580	+28.6	23,000	40,000	12,000	72,000	39,890	39,955	+33.1	30,000	50,000	14,000	250,000
DES/C	2,392	31,804	29,070	—	23,371	39,000	7,800	70,000	42,379	41,160	—	30,960	53,700	12,064	100,000
STATE	10,736	26,751	25,020	+16.0	19,788	31,164	12,854	65,000	36,691	35,293	+19.1	28,418	43,632	18,600	75,000
MUNIC	2,447	26,934	25,800	+24.2	21,166	31,232	10,540	63,537	34,770	33,288	+25.9	27,480	40,000	14,957	86,652
INDUS	7,974	31,289	28,440	+18.8	23,165	36,780	18,805	60,970	42,874	40,488	+25.7	32,220	50,244	24,350	82,008
09–10	543	26,431	25,000	+17.4	21,400	30,616	9,044	48,647	33,801	32,892	+21.8	26,000	40,000	13,850	60,000
11–12	104	32,965	32,000	+26.5	26,000	39,240	9,000	58,000	40,112	39,000	+26.8	33,300	47,000	12,000	63,500
Overall	33,277	29,225	26,640	+22.0	21,000	35,000	7,400	140,000	36,644	34,047	+21.6	26,795	44,662	10,400	250,000

TABLE 21.—Complete G.S. Schedule Effective October, 1981, in Dollars.

Grade (1)	1 (2)	2 (3)	3 (4)	4 (5)	5 (6)	6 (7)	7 (8)	8 (9)	9 (10)	10 (11)
GS-5[a]	16,278	16,706	17,134	17,562	17,990	18,418	18,846	19,274	19,702	20,130
GS-7[a]	20,170	20,701	21,232	21,763	22,294	22,825	23,356	23,887	24,418	24,949
GS-9[a]	23,371	24,020	24,669	25,318	25,967	26,616	27,265	27,914	28,563	29,212
GS-11	25,138	25,924	26,710	27,496	28,282	29,068	29,854	30,640	31,426	32,212
GS-12	28,245	29,187	30,129	31,071	32,013	32,955	33,897	34,839	35,781	36,723
GS-13	33,586	34,706	35,826	36,946	38,066	39,186	40,306	41,426	42,546	43,666
GS-14	39,689	41,012	42,335	43,658	44,981	46,304	47,627	48,950	50,273[b]	51,596[b]
GS-15	46,685	48,241	49,797	51,353	52,909	54,465	56,021	57,577[b]	59,133[b]	60,689[b]
GS-16	54,755	56,580	58,405[b]	60,230[b]	62,055[b]	63,880[b]	65,705[b]	67,530[b]	69,355[b]	
GS-17	64,142[b]	66,280[b]	68,418[b]	70,556[b]	72,694[b]					
GS-18	75,177[b]									

[a]Salary rates adjusted for professionals in 800 Engineering Series.

[b]Basic pay is limited by Section 5308 of Title 5 of United States Code to rate for level V of Executive Schedule, which is, as of effective date of this schedule, $57,500.

Note: The majority of those previously in Grade 16 and above are now in Senior Executive Service (SES) and are under different pay schedule.

TABLE 22.—Grade I/II—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
2	16,000	20,400	18,200	21,000					16,810	22,592	16,057	20,370					16,766	21,003
3	17,056	20,850	20,730	23,000	16,278	22,880	21,444	30,972	18,030	24,856	18,980	24,700					18,350	23,941
4	17,000	20,000					20,592	29,857	16,619	24,356	15,660	21,336					16,921	22,069
5	18,200	22,584					21,048	29,766	18,444	26,018	20,000	25,129			9,000	12,000	17,040	19,140
6	18,000	22,200			20,590	28,840	22,676	31,800	17,985	23,649	19,157	23,555	12,000	15,000			18,286	24,025
7	16,500	24,280							14,652	19,788	15,876	23,688	9,044	22,896			13,643	20,843

TABLE 23.—Grade III—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
2	18,789	23,000	22,790	30,960					20,636	26,915	19,494	26,450	15,250	15,650			18,594	23,473
3	20,550	24,000	22,500	25,000	22,020	29,212	22,044	33,060	19,317	29,034	21,524	27,368	16,449	21,000			20,024	26,780
4	20,000	23,950		22,780	12,000	15,000	22,152	33,325	18,011	25,532	18,780	27,468	18,800	22,088			17,083	22,866
5	20,614	25,000					23,808	33,594	21,036	28,284	21,414	26,856	15,750	22,750	18,660	18,000	18,619	25,393
6	21,570	25,500	17,600	28,600	22,990	34,720	25,139	30,857	21,302	27,238	21,897	26,899	11,000	18,000			19,622	26,362
7	18,000	23,000							17,316	21,672	17,316	25,980					17,544	23,550

TABLE 24.—Grade IV—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
2	24,000	30,000	24,000	28,000					23,550	30,729	22,381	28,418	21,450	24,800			22,753	27,933
3	23,500	28,000	25,000	30,000	25,138	32,212	27,408	30,420	21,632	32,212	24,250	30,295	22,650	26,750	28,800	33,840	24,709	30,299
4	23,901	28,650					26,709	39,013	19,786	28,288	19,535	28,894	22,637	24,000	22,000	38,000	21,813	30,248
5	24,733	29,000			12,000	13,000	25,440	38,880	23,163	32,428	24,680	31,820	21,900	24,550	30,000	33,300	22,763	28,701
6	25,000	30,480			26,490	39,460	28,263	35,558	22,990	30,239	25,440	30,768	22,256	25,154			24,773	31,168
7	24,000	29,000							19,788	24,816	19,789	29,832					21,192	27,882

TABLE 25.—Grade V—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
2	27,750	33,500	33,200	42,060					28,176	36,532	23,323	27,557	25,250	31,500			26,086	33,432
3	27,450	31,890	28,245	35,000	27,480	36,723	27,828	41,086	23,516	34,586	26,385	32,772	24,000	30,500	32,760	45,200	26,815	35,243
4	27,000	33,900			26,000	32,000	31,796	44,997	20,484	31,850	22,944	32,656	24,035	31,000	32,000	39,000	25,643	34,308
5	28,000	32,950			45,000	48,000	27,900	42,450	26,484	35,616	26,856	30,372	24,500	27,850	25,390	30,700	28,291	34,739
6	30,000	37,200	24,000	37,500	31,140	44,920	30,007	37,791	26,662	35,360	26,677	34,160	24,945	28,857			26,282	35,011
7	29,800	40,940							21,672	27,204	21,672	32,724					24,114	31,309

TABLE 26.—Grade VI—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
2	32,300	41,600	35,790	44,900					33,586	43,666	25,272	34,466	33,375	40,500			29,873	40,731
3	32,000	37,500	35,000	40,000	31,793	43,463	33,234	50,280	26,794	39,032	27,952	36,080	30,616	36,850	39,240	56,900	31,776	42,443
4	31,400	40,000		39,910			39,488	55,491	24,588	35,293	27,048	38,364	27,589	34,822	36,000	43,000	30,812	39,803
5	32,000	38,500					32,040	46,560	28,284	38,040	27,000	31,500	29,500	36,850	37,860	48,000	30,780	39,516
6	34,626	41,000		34,060	38,070	55,230	41,950	53,217	32,000	42,792	30,543	37,177	28,720	39,000			33,987	42,491
7	34,000	40,000							23,688	29,832	23,688	35,916	23,976	28,884			26,338	33,658

TABLE 27.—Grade VII—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct.		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
1											27,588	33,516					27,588	33,516
2	37,200	45,000	35,520	51,180					39,689	50,000	28,734	35,000	37,300	42,180			34,548	44,672
3	37,500	42,800	40,000	47,500	34,140	48,876	33,678	47,810	28,883	40,666	31,362	41,392	35,500	37,500	42,150	58,000	34,761	44,168
4	38,000	45,000		56,960	46,000	55,000	42,160	45,640	27,934	39,104	25,524	27,752	41,000	40,429	40,000	45,000	36,374	43,754
5	37,730	45,000					37,400	49,930	32,688	43,841	29,00	34,776	35,800	42,000	51,360		36,810	34,898
6	40,800	48,150	33,000	46,200	42,950	60,830	44,429	54,733	34,400	46,000	35,265	44,525	36,885	44,359			35,400	44,351
7	44,500	51,000							25,980	43,476	25,980	39,492	30,276	36,540			31,684	42,627

TABLE 28.—Grade VIII—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
1											34,332	41,580					34,332	41,580
2	42,720	60,240	72,000	88,000					42,790	57,948	30,619	35,750		52,000			44,776	58,698
3	40,000	49,200	46,000	65,000	42,150	52,980	43,926	62,904	32,084	44,000	36,647	47,357	30,000	44,189	58,000	63,500	40,147	52,768
4	43,500	50,000		139,000	70,000	85,000	49,376	64,956	30,901	43,316	31,469	42,882	40,000	54,966	42,000	47,000	43,049	52,204
5	42,250	53,000					33,183	49,775	35,460	48,108	30,684	43,515			26,000	32,000	33,515	44,696
6	48,000	54,860			43,850	70,400			34,020	44,629	37,500	45,600					40,805	52,657
7	39,840	61,500							27,204	45,360	27,204	41,352					26,136	38,904

TABLE 31.—Engineers' Nonsalary Benefits, 1981—

Benefits (1)	Consulting Firms			Construction Firms			Design Construct			State Departments and Agencies		
	Number			Number			Number			Number		
	A (2)	B (3)	% (4)	A (5)	B (6)	% (7)	A (8)	B (9)	% (10)	A (11)	B (12)	% (13)
Vacation	18	378	4.61	3	12	4.84	5	11	6.34	8	36	6.66
Holidays	19	377	2.92	3	12	2.57	5	11	2.80	8	36	4.29
Sick leave	49	347	2.51	7	8	3.55	7	9	3.08	7	37	4.28
Military leave	232	108	0.72	11	1	0.20	4	5	1.66	12	24	1.96
Incentive compensation	116	224	9.71	3	9	16.18	6	3	14.16	34	2	2.36
Retirement income	162	234	8.33	7	8	11.84	9	7	14.37	11	33	13.71
Social security	35	361	8.59	5	10	11.71	8	8	10.13	14	30	7.50
Professional dues	107	289	1.19	9	6	1.09	10	6	1.10	40	4	0.65
Insurance—medical	45	351	3.90	5	10	3.42	7	9	10.54	12	32	5.35
Insurance—life	167	229	1.43	8	7	1.40	8	8	5.10	27	17	3.96
Education	214	182	0.86	11	4	1.26	13	3	1.36	41	3	0.10
Separation allowance	336	60	1.91	12	3	2.34	15	1	0.66	40	4	1.73
Other	224	172	3.23	7	8	8.82	10	6	2.33	33	11	3.89
Average of overall	—		36.77	—		50.70	—		47.45	—		42.55

Average Cost, as a Percentage of Base Payroll.

Municipalities and Counties			Railroad, Utilities and Industries			Education 11–12 Months			Total Average		
Number			Number			Number			Number		
A (14)	B (15)	% (16)	A (17)	B (18)	% (19)	A (20)	B (21)	% (22)	A (23)	B (24)	% (25)
10	102	5.68	5	12	6.70	1	3	8.27	50	554	5.04
10	102	3.97	4	13	3.74		4	3.54	49	555	3.21
14	98	4.51	7	10	2.81	2	2	5.00	93	511	3.06
67	35	3.09	12	4	0.63	3	1	3.85	341	178	1.39
95	7	2.66	13	3	33.40	4		0.00	271	248	10.03
25	87	10.67	3	14	11.92		4	8.63	217	387	9.63
27	85	7.69	4	13	6.34		4	4.30	93	511	8.37
70	42	2.36	11	6	1.35	3	1	1.00	250	354	1.32
22	90	5.79	3	14	10.62	1	3	2.24	95	509	4.61
43	69	3.32	6	11	1.26		4	1.41	259	345	2.01
77	35	1.14	12	5	0.23	3	1	1.00	371	233	0.89
108	4	3.68	17		0.00	4		0.00	532	72	2.00
81	31	4.05	9	8	5.11	4		0.00	368	236	3.60
—		40.86	—		51.58	—		29.74	—		38.94

TABLE 33.—Familiarity with Manual 55 and

Answers (1)	Total (2)	Consulting Firms (3)	Construction Firms (4)	Design/ Construct (5)
(1) Are you familiar with ASCE Manual 55?				
Total	638 100.0%	395 100.0%	15 100.0%	16 100.0%
Yes	245 38.4%	166 42.0%	4 26.7%	5 31.3%
No	335 52.5%	189 47.8%	9 60.0%	11 68.8%
No answer	58 9.1%	40 10.1%	2 13.3%	–
If yes, how do employment conditions in your organization compare with recommendations in each section of Manual 55?				
(2) Section 1 = Professional Employment				
Similar	43 17.6%	35 21.1%	–	–
Better	149 60.8%	103 62.0%	1 25.0%	3 60.0%
Not as good	23 9.4%	10 6.0%	1 25.0%	–
No opinion	17 6.9%	10 6.0%	–	1 20.0%
(3) Section 2 = Professional Grade Descriptions				
Similar	12 4.9%	6 3.6%	–	–
Better	149 60.8%	106 63.9%	1 25.0%	2 40.0%
Not as good	43 17.6%	28 16.9%	–	1 20.0%
No opinion	27 11.0%	17 10.2%	1 25.0%	1 20.0%

Comparison of Conditions in Organizations with Manual 55.

State Departments and Agencies (6)	Municipalities, Counties, and Regional Authorities (7)	Railroads, Utilities, and Industries (8)	Education	
			9–10 Month contracts (9)	11–12 Month contracts (10)
44 100.0%	112 100.0%	17 100.0%	34 100.0%	4 100.0%
11 25.0%	37 33.0%	4 23.5%	14 41.2%	4 100.0%
30 68.2%	68 60.7%	12 70.6%	16 47.1%	–
3 6.8%	7 6.3%	1 5.9%	4 11.8%	–
2 18.2%	1 2.7%	2 50.0%	3 21.4%	–
8 72.7%	23 62.2%	1 25.0%	7 50.0%	3 75.0%
–	9 24.3%	1 25.0%	1 7.1%	1 25.0%
1 9.1%	4 10.8%	–	1 7.1%	–
2 18.2%	2 5.4%	–	1 7.1%	1 25.0%
7 63.6%	21 56.8%	–	10 71.4%	2 50.0%
1 9.1%	11 29.7%	1 25.0%	–	1 25.0%
1 9.1%	3 8.1%	3 75.0%	1 7.1%	–

TABLE 33.—

Answers (1)	Total (2)	Consulting Firms (3)	Construction Firms (4)	Design/ Construct (5)
(4) Section 3 = Recommended Salary Ranges				
Similar	18 7.3%	14 8.4%	–	1 20.0%
Better	114 46.5%	88 53.0%	1 25.0%	2 40.0%
Not as good	78 31.8%	41 24.7%	1 25.0%	–
No opinion	22 9.0%	15 9.0%	–	1 20.0%
(5) Section 4 = Recommended Benefits				
Similar	49 20.0%	37 22.3%	1 25.0%	–
Better	117 47.8%	76 45.8%	1 25.0%	2 40.0%
Not as good	47 19.2%	34 20.5%	–	1 20.0%
No opinion	19 7.8%	11 6.6%	–	1 20.0%

Continued

State Departments and Agencies (6)	Municipalities, Counties, and Regional Authorities (7)	Railroads, Utilities, and Industries (8)	Education	
			9–10 Month contracts (9)	11–12 Month contracts (10)
2 18.2%	1 2.7%	–	–	–
6 54.5%	10 27.0%	2 50.0%	4 28.6%	1 25.0%
2 18.2%	22 59.5%	2 50.0%	7 50.0%	3 75.0%
1 9.1%	4 10.8%	–	1 7.1%	–
4 36.4%	3 8.1%	2 50.0%	1 7.1%	1 25.0%
6 54.5%	23 62.2%	2 50.0%	4 28.6%	3 75.0%
–	7 18.9%	–	5 35.7%	–
1 9.1%	4 10.8%	–	2 14.3%	–

TABLE 29.—Grade IX—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
2	47,800	55,050							50,712	69,673	32,500	48,496					41,590	56,783
3	50,000	64,300	47,500	78,000	46,427	60,320	51,108	80,094	35,772	47,420	45,800	54,185	39,000	52,500			42,981	61,730
4	50,000	60,000		104,000	70,000	90,000	49,250	51,250	44,028	45,463	30,000	50,000	25,000	33,000	45,000	52,000	44,754	60,534
5	50,000	60,000					53,439	64,186	39,246	50,754	34,944	47,508			32,000	36,000	41,026	51,640
6	48,992	71,400	40,000		58,700	95,950	40,000		40,956	52,980	60,912	78,947					47,958	49,204
7	39,000	55,000								42,500							39,000	43,750

TABLE 30.—All Grades—Comparison of Median Salary by Region, in Dollars

	Consulting Firms		Construction Firms		Design Construct		Railroads, Utilities, and Industries		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Education 9–10 Months		Education 11–12 Months		Totals	
REG (1)	ENT (2)	MAX (3)	ENT (4)	MAX (5)	ENT (6)	MAX (7)	ENT (8)	MAX (9)	ENT (10)	MAX (11)	ENT (12)	MAX (13)	ENT (14)	MAX (15)	ENT (16)	MAX (17)	ENT (18)	MAX (19)
1											30,960	37,548					30,960	37,548
2	26,500	32,450	27,990	41,460					29,137	38,127	23,469	32,102	25,250	31,600			25,893	34,373
3	26,400	32,490	30,000	39,615	27,872	37,080	28,520	42,240	25,138	35,985	26,829	34,148	25,000	34,000	39,240	56,900	28,614	38,962
4	26,000	33,000		52,480	46,000	55,000	32,490	43,953	20,484	31,783	22,358	30,302	26,000	33,763	38,000	44,000	29,408	39,763
5	28,000	33,540			28,500	30,500	27,900	40,488	25,932	35,616	26,130	32,320	24,550	27,700	28,000	32,650	24,194	30,583
6	28,000	35,020	28,500	35,780	32,950	48,550	27,852	33,826	29,604	37,116	26,650	33,828	23,600	28,857			27,510	35,797
7	29,000	35,560							21,672	28,518	21,672	32,724	23,976	28,884			24,080	30,953

TABLE 32.—Average Typical Annual Incentive Benefits

ASCE Grade (1)	Consulting Firms		Construction Firms		Design Construct		State Departments and Agencies		Municipalities, Counties, and Regional Authorities		Railroads, Utilities, and Industries		Education 9–10 Month Contract		Education 11–12 Month Contract		Totals	
	Dollars (2)	Number of individuals (3)	Dollars (4)	Number of individuals (5)	Dollars (6)	Number of individuals (7)	Dollars (8)	Number of individuals (9)	Dollars (10)	Number of individuals (11)	Dollars (12)	Number of individuals (13)	Dollars (14)	Number of individuals (15)	Dollars (16)	Number of individuals (17)	Dollars (18)	Number of individuals (19)
I/II	1,959	1,386	1,808	19	2,750	442	1,200	1,897	700	483		1,096		5	—	1	1,942	5,332
III	1,983	1,320	7,088	20	3,300	408	1,800	2,793	650	599		820		27	—	2	1,215	5,990
IV	3,957	1,523	2,323	23	4,200	538	2,400	2,489	1,458	448	15,520	1,892	9,050	104	—	16	1,462	7,034
V	386	1,500	6,039	41	10,283	498	28,000	1,899	1,342	405		1,671	5,802	143	—	32	289	6,990
VI	2,074	1,429	7,871	22	4,513	367	3,000	889	2,712	262	1,760	1,580	13,000	207	—	29	532	4,785
VII	3,641	817	12,732	13	10,333	101	3,400	490	3,271	150	17,368	544	13,000	44	—	14	737	2,174
VIII	5,860	538	18,246	15	18,000	28		327	2,856	77		258		10	—	6	765	1,170
IX	3,034	394	59,691	13	24,000	10	4,300	42	700	23		113		3	—	4	636	602

TABLE 34.—Use of Professional Grade Classifications

Answers (1)	Total (2)	Consulting Firms (3)	Construction Firms (4)	Design Construct (5)	State Departments and Agencies (6)	Municipalities, Counties, and Regional Authorities (7)	Railroads, Utilities, and Industries (8)	Education	
								9–10 Month contracts (9)	11–12 Month contracts (10)
(1) Have you come to an understanding with your employees on their grade classifications?									
Total	638 100.0%	395 100.0%	15 100.0%	16 100.0%	44 100.0%	112 100.0%	17 100.0%	34 100.0%	4 100.0%
Yes	304 47.6%	175 44.3%	4 26.7%	12 75.0%	28 63.6%	59 52.7%	6 35.3%	17 50.0%	3 75.0%
No	245 38.4%	165 41.8%	8 53.3%	3 18.8%	9 20.5%	38 33.9%	9 52.9%	12 35.3%	1 25.0%
No answer	89 13.9%	55 13.9%	3 20.0%	1 6.3%	7 15.9%	15 13.4%	2 11.8%	5 14.7%	—
(2) Do you use the ASCE Grade Descriptions?									
Total	638 100.0%	395 100.0%	15 100.0%	16 100.0%	44 100.0%	112 100.0%	17 100.0%	34 100.0%	4 100.0%
Yes	98 15.4%	87 22.0%	—	2 12.5%	2 4.5%	5 4.5%	—	2 5.9%	—
No	427 66.9%	232 58.7%	12 80.0%	13 81.3%	36 81.8%	90 80.4%	15 88.2%	25 73.5%	4 100.0%
No answer	113 17.7%	76 19.2%	3 20.0%	1 6.3%	6 13.6%	17 15.2%	2 11.8%	7 20.6%	—

TABLE 35.—Educational Background of Employees

Category (1)	B.S. Degree (2)	Number of Employers (3)	M.S. Degree (4)	Number of Employers (5)	PhD Degree (6)	Number of Employers (7)
Consulting firms	5,414	339	2,601	256	286	65
Construction firms	102	14	7	6		
Design/construct	874	13	364	8	73	5
State departments and agencies	3,648	34	450	28	9	6
Municipalities, counties, and regional authorities	1,596	94	228	53	10	9
Railroads, utilities and industries	4,565	16	1,010	13	2	2
Education, 9–10 month contract	7	6	95	27	461	31
Education, 11–12 month contract	1	1	15	4	88	4
Total	16,207	517	4,770	122	929	122

TABLE 36.—Professional Registration

Category (1)	Number of P.E. (2)	Number of Employers (3)	Number of EITS (4)	Number of Employers (5)
Consulting firms	5,636	344	1,387	238
Construction firms	41	12	17	6
Design/construct	733	13	163	9
State departments and agencies	4,782	39	1,039	28
Municipalities, counties, and regional authorities	1,102	97	223	47
Railroads, utilities, and industries	83	12	16	8
Education, 9–10 month contract	395	31	66	19
Education, 11–12 month contract	65	4	4	2
Total	12,887	552	2,915	357

Table 37.—ASCE—Combined State Totals by

Region (1)	State name (2)	Number of consulting firms		Number of construction firms		Number of design/ construct		Number of state departments or agencies	
		Organi-zation (3)	Indi-vidual (4)	Organi-zation (5)	Indi-vidual (6)	Organi-zation (7)	Indi-vidual (8)	Organi-zation (9)	Indi-vidual (10)
1	Connecticut								
1	Region totals								
2	Delaware							1	2
2	District of Columbia	1	10					1	1,101
2	Maryland	8	90					1	6
2	New Jersey	4	39						
2	New York	26	590	1	28			2	2,145
2	Pennsylvania	19	948	1	10			2	604
2	Region totals	58	1,677	2	38			7	3,858
3	Illinois	25	458	2	25	1	32	1	107
3	Indiana	4	34	1	8	1	2	1	385
3	Michigan	8	187	3	44	1	48	1	15
3	Minnesota	3	22	1	9	2	30	2	33
3	Missouri	18	903			2	271	1	863
3	Ohio	13	233	1	17	1	28	1	4
3	Wisconsin	10	182	1	2			1	59
3	Region totals	81	2,019	9	105	8	411	8	1,466
4	Alabama	5	116						
4	Arkansas	5	55			1	1	3	209
4	Florida	20	408					1	15
4	Georgia	9	224						
4	Kentucky	3	12					2	372
4	Louisiana	9	111	1	2				
4	Mississippi	5	15						
4	North Carolina	7	44					1	677
4	South Carolina	2	7					2	317
4	Tennessee	8	58						
4	Virginia	11	311			2	4		
4	West Virginia	2	7	1	5			1	200
4	Region Totals	86	1,368	2	7	3	5	10	1,790

Category Spread within Region for 1981

Number of Municipalities, counties, and regional authorities		Number of railroads utilities and industries		Number of education 9–10 months		Number of education 11–12 months		Totals		Region
Organization (11)	Individual (12)	Organization (13)	Individual (14)	Organization (15)	Individual (16)	Organization (17)	Individual (18)	Organization (19)	Individual (20)	(21)
1	2							1	2	
1	2							1	2	REG I
1	2							2	4	
				1	12			3	1,123	
2	90							11	185	
3	14							7	53	
7	139			3	31			39	2,933	
2	58			3	63			27	1,683	
15	303			7	106			69	5,932	REG II
3	127	1	49	2	72			35	870	
						1	60	8	489	
20	340			1	17			34	659	
8	74	4	34					20	202	
2	59	1	34					24	2,130	
5	19	1	2	5	50			27	353	
6	140	1	3	1	15			20	401	
44	767	8	122	9	154	1	60	168	5,104	REG III
								5	118	
1	4							10	269	
1	49			2	36	1	14	25	522	
2	9							11	233	
								5	344	
				2	35			12	148	
1	1							6	16	
2	2	1	628	1	36			12	1,387	
3	5			2	19			9	348	
1	9	1	6,857	2	29			12	6,953	
1	3							14	318	
				1	9			5	221	
12	82	2	7,485	10	164	1	14	126	10,915	REG IV

Table 37.—

Region (1)	State name (2)	Number of consulting firms		Number of construction firms		Number of design/ construct		Number of state departments or agencies	
		Organi-zation (3)	Indi-vidual (4)	Organi-zation (5)	Indi-vidual (6)	Organi-zation (7)	Indi-vidual (8)	Organi-zation (9)	Indi-vidual (10)
5	Colorado	23	395					1	20
5	Iowa	9	148						
5	Kansas	6	60					1	302
5	Montana	7	126						
5	Nebraska	6	44					1	139
5	New Mexico	1	8			1	3	1	65
5	North Dakota	1	15					1	191
5	Oklahoma	4	71					1	518
5	South Dakota	1	2					1	206
5	Texas	21	460					4	916
5	Wyoming	7	92					1	191
5	Region totals	86	1,421			1	3	12	2,548
6	Arizona	7	61					1	221
6	California	38	1,798	1	15	4	1,973	3	73
6	Idaho	6	115						
6	Nevada	3	8						
6	Oregon	8	119	1	1			1	625
6	Utah	5	24						
6	Washington	13	240					1	4
6	Region totals	80	2,365	2	16	4	1,973	6	923
7	Alaska	1	14						
7	Hawaii	3	41					1	151
7	Virgin Island								
7	Without APO	1	10						
7	Region totals	5	65					1	151
Final Totals		396	8,915	15	166	16	2,392	44	10,736

Continued

Number of Municipalities, counties, and regional authorities		Number of railroads utilities and industries		Number of education 9–10 months		Number of education 11–12 months		Totals		Region
Organization (11)	Individual (12)	Organization (13)	Individual (14)	Organization (15)	Individual (16)	Organization (17)	Individual (18)	Organization (19)	Individual (20)	(21)
4	100	2	97	1				31	612	
3	29							12	177	
1	29	2	9	1	15			11	415	
				1	20			8	146	
1	9							8	192	
								3	76	
								2	206	
						1	20	6	609	
1	6							3	214	
5	79					1	10	31	1,465	
								8	283	
15	252	4	106	3	35	2	30	123	4,395	REG V
3	105							11	387	
13	877	3	261					62	4,997	
1	1			1	17			8	133	
1	2							4	10	
5	32							15	777	
				1	24			6	48	
1	4			2	31			17	279	
24	1,021	3	261	4	72			123	6,631	REG VI
								1	14	
1	20							5	212	
				1	12			1	12	
								1	10	
1	20			1	12			8	248	REG VII
112	2,447	17	7,974	34	543	4	104	638	33,277	

Appendix II.—Questionnaire

AMERICAN SOCIETY OF CIVIL ENGINEERS

345 EAST 47th STREET • NEW YORK, N. Y. 10017 • (212) 644-7496

November 6, 1981

File: 5-4-4.12

TO: Partners, Principal Officers and Comptrollers
Chairmen, Department Heads and Deans

REQUEST FOR 1981 ASCE SALARY SURVEY DATA
ANALYSIS TO BEGIN DECEMBER 4, 1981

Gentlemen:

The American Society of Civil Engineers is conducting the sixteenth in its series of biennial salary surveys, and needs your assistance in the form of salary data to continue providing meaningful reports on the compensation of civil engineers as a service to the profession and the public.

Please take the time to see that this questionnaire is filled out as soon as possible, by the appropriate person if not yourself, and returned to ASCE in the enclosed envelope. Processing of the returns will begin December 4, 1981. The report should be available early in 1982. Each respondent may order a copy at a discount of 50% by using the order form on the last page of this questionnaire form. As always data from individual employers will be treated confidentially.

Thank you for your consideration of this request. Your cooperation will be greatly appreciated. If you have any questions or need extra forms please call the writer at (212) 644-7665.

Sincerely,

R. Lawrence Whipple

R. Lawrence Whipple
Director
Engineering Management Services

Enclosure

1981 ASCE SURVEY OF CIVIL ENGINEERING SALARIES

Name of Organization

Address

City State Zip (5-9)

General nature of business

Name and title of respondent

INSTRUCTIONS

1. Please refer to the ASCE Professional Grade Descriptions (copy enclosed) and assign each engineering position in your organization to the appropriate ASCE Grade. The relationship between U.S. Civil Service Grades and ASCE Grades is shown in Table I of the enclosure. If a particular GRADE DOES NOT APPLY to your organization ENTER "X" under annual salary and number of employees. If at this time, there are NO EMPLOYEES IN A PARTICULAR GRADE for which a SALARY RANGE is PROVIDED enter "0" under number of employees.
2. Report data in terms of *ANNUAL SALARY* only. Monthly or weekly rates should be converted to annual salary.
3. Round salary and incentive compensation to NEAREST WHOLE DOLLAR. If no incentive compensation enter "0".

QUESTIONNAIRE — PART I, SALARY DATA

1. Please indicate which of the major employment categories listed below best applies to your organization by putting the appropriate number in the box to the right ☐ (10)
   1. Consulting
   2. Construction
   3. Design/Construct
   4. State Department or Agency
   5. Municipality or County
   6. Industry, Railroad or Utility
   7. Education: 9-10 months
   8. Education: 11-12 months
2. Please enter the appropriate State Code for your office location from the back of the ASCE Professional Grade Descriptions enclosed ☐ (11-12)
   Geographic distribution is important to the survey. If reporting for more than one location please fill out a form or copy thereof for each.
3.

ASCE Professional GRADE*	ANNUAL BASE SALARY ($) (not monthly or weekly rate) RANGE ENTRANCE (14-19)	MAXIMUM (20-25)	Number of EMPLOYEES IN GRADE (If none, enter 0) (26-31)	$ VALUE OF INCENTIVE COMPENSATION IN 1980 (Bonuses and or Profit sharing) (32-37)
I II	$	$		$
III	$	$		$
IV	$	$		$
V	$	$		$
VI	$	$		$
VII	$	$		$
VIII	$	$		$
IX	$	$		$

PART II. SALARY RELATED BENEFITS

Over the years numerous non-salary benefits have become a significant complement to annual base salary in making up total compensation. Therefore, it is essential to consider both when making a comparison or evaluation. For this reason, we ask that you INDICATE THE APPROXIMATE PERCENT of your ANNUAL BASE PAYROLL[1] represented by each of the benefit items listed below. It is not necessary to provide detailed descriptions or pinpoint accuracy. We just need a good general picture in terms of approximate percentages that can be easily tabulated. For "Retirement", "Insurance" and other similar benefits, INDICATE ONLY THE ANNUAL CONTRIBUTION MADE BY THE ORGANIZATION for the benefit of the employee. If benefit is given, but percentage is not available, enter "N.A." If benefit is not given, enter "0".

	PERCENTAGE[2] OF ANNUAL BASE PAYROLL%	COMMENTS
1. Vacation	% (14-17)	
2. Holidays	% (18-21)	
3. Sick Leave	% (22-25)	
4. Military Leave and Jury Duty	% (26-29)	
5. Incentive Compensation (1980)	% (30-33)	
6. Retirement Income and Deferred Profit Sharing	% (34-37)	
7. Social Security, Unemployment and Workmen's Compensation Taxes	% (38-41)	
8. Professional Dues, Licenses and Meetings	% (42-45)	
9. Insurance — medical	% (46-49)	
10. Insurance — life	% (50-53)	
11. Education	% (54-57)	
12. Separation Allowance	% (58-61)	
13. Other — including vehicle, parking, etc.	% (62-65)	

(1) Annual Base Payroll is defined as base payroll (combined salaries) for 52 weeks, and does not include overtime or incentive compensation (bonuses and or profit sharing).
(2) Use decimals for fractions of a percent — i.e. 2.50%.

GENERAL INFORMATION

The following questions refer to MANUAL 55 "ASCE GUIDE TO EMPLOYMENT CONDITIONS FOR CIVIL ENGINEERS." This publication has been widely distributed by the Society in an attempt to inform its members, employers and employees alike, of reasonably acceptable personnel management practices and to provide a common basis for communication, cooperation and mutual understanding. We are interested in learning your reaction to this publication.

As with other portions of the questionnaire, individual responses to the following questions WILL BE KEPT CONFIDENTIAL.

	Yes	No
1. Are you familiar with ASCE Manual 55?	☐ (14)	☐
If yes, how do employment conditions in your organization compare with recommendations in each section of Manual 55? (Answer for each section) 1. Better 2. Similar 3. Not as Good 4. No opinion		
Section 1 — Professional Employment	☐ (15)	
Section 2 — Professional Grade Descriptions	☐ (16)	
Section 3 — Recommended Salary Ranges	☐ (17)	
Section 4 — Recommended Benefits	☐ (18)	
	Yes	No
2. Have you come to an understanding with your employees on their Professional Grade Classification?	☐ (19)	☐
Do you use the ASCE Professional Grade Descriptions?	☐ (20)	☐

3. How many engineers in your employ have as their highest degree a BS (21-24) ? an MS (25-28) ? a Ph.D. (29-32) ?

4. How many are registered Professional Engineers (33-36) ? EIT's (37-40) ?

THANK YOU FOR YOUR COOPERATION
PLEASE BE SURE TO RETURN THIS QUESTIONNAIRE BEFORE December 4, 1981
in the self-addressed envelope provided

ASCE will provide a copy of the Salary Survey Report (regular price $12.00) and or Manual 55 (regular price $7.00) at a discount of 50% to those who respond to this questionnaire. If you wish to take advantage of this offer, just fill out the order form below, enclose a check for the appropriate amount and return with questionnaire to R.L. Whipple, Director, Engineering Management Services, c/o ASCE.

PLEASE FORWARD TO

Name _____ Title _____

Firm or Agency _____

Address _____ City _____ State _____ Zip _____

One copy of ASCE Salary Survey Report (discount price $6.00)

Manual 55, ASCE Guide to Employment Conditions for Civil Engineers (discount price $3.50)

Total _____

To allow time for data processing and report preparation, delivery of this order is scheduled for April, 1982.

Appendix III.—ASCE Professional Grade Descriptions

ASCE PROFESSIONAL GRADE DESCRIPTIONS

The purpose of these grade descriptions is to enable employers and employees to ascertain an individual s professional grade. The system can also be a helpful tool for encouraging engineers to improve their ability so as to qualify for higher grades and to facilitate agreement between the employer and the employee regarding each engineer s level of responsibility.

These grade descriptions are compatible with those of the U S. Department of Labor, Bureau of Labor Statistics (BLS) and of the National Society of Professional Engineers (NSPE). It must be stressed that the grade descriptions are intended to cover the requirements of a wide range of typical engineering organizations but cannot possibly fit all. Many employers may not have the full range of positions listed. Table #1 (on the back page) indicates Federal G S. equivalents with ASCE grades.

Descriptions should be considered as typical characteristics of a particular grade, rather than as desirable or minimum requirements. For example, it is expected that in many areas of practice, such as research and development, individuals filling middle or higher level positions would routinely have graduate degrees, though this is not indicated. All descriptive matter should be considered when a position is being evaluated. Literal conformance with every item in the descriptions is not necessary when there is a preponderance of evidence that the person measures up to the intended level of competence and responsibility.

Suitable professional recognition and salary scales should be provided for the engineer who selects the technical path for advancement so that he may achieve the same or greater professional and economic status as the engineer who advances along the management path. The grade descriptions include language applicable to both.

Many positions may require an advanced degree. There also may be cases where individuals holding engineering positions have degrees in certain scientific or other closely related fields.

ASCE PROFESSIONAL

	Engineer I/II	Engineer III	Engineer IV
General Characteristics	This is the entry level for professional work. Performs assignments designed to develop professional work knowledge and abilities requiring application of standard techniques, procedures, and criteria in carrying out a sequence of related engineering tasks. Limited exercise of judgment is required on details of work and in making preliminary selections and adaptations of engineering alternatives.	Independently evaluates, selects, and applies standard engineering techniques, procedures, and criteria, using judgment in making minor adaptations and modifications. Assignments have clear and specified objectives and require the investigation of a limited number of variables. Performance at this level requires development of experience in a professional position or equivalent graduate level education.	As a fully competent engineer in all conventional aspects of the subject matter of the functional area of the assignments, plans and conducts work requiring judgment in the independent evaluation, selection, and substantial adaptation and modification of standard techniques, procedures, and criteria. Devises new approaches to problems encountered. Requires sufficient professional experience to assure competence as a fully trained worker, or, for positions primarily of a research nature, completion of all requirements for a doctoral degree may be substituted for experience.
Direction Received	Supervisor screens assignments for unusual or difficult problems and selects techniques and procedures to be applied on nonroutine work. Receives close supervision on new aspects of assignments.	Receives instructions on specific assignment objectives, complex features, and possible solutions. Assistance is furnished on unusual problems and work is reviewed for application of sound professional judgment.	Independently performs most assignments with instructions as to the general results expected. Receives technical guidance on unusual or complex problems and supervisory approval on proposed plans for projects.
Typical Duties & Responsibilities	Using prescribed methods, performs specific and limited portions of a broader assignment of an experienced engineer. Applies standard practices and techniques in specific situations; adjusts and correlates data; recognizes discrepancies in results and follows operations through a series of related detailed steps or processes.	Performs work which involves conventional types of plans, investigations, surveys, structures, or equipment with relatively few complex features for which there are precedents. Assignments usually include one or more of the following: Equipment design and development; test of materials; preparation of specifications; process study; research investigations; report preparation; and other activities of limited scope requiring knowledge of principles and techniques commonly employed in the specific narrow area of assignments.	Plans, schedules, conducts or coordinates detailed phases of the engineering work in a part of a major project or in a total project of moderate scope. Performs work which involves conventional engineering practice but may include a variety of complex features such as conflicting design requirements, unsuitability of conventional materials, and difficult coordination requirements. Work requires a broad knowledge of precedents in the specialty area and a good knowledge of principles and practices of related specialties.
Responsibility for Direction of Others	May be assisted by a few aides or technicians.	May supervise or coordinate the work of draftsmen, technicians, and others who assist in specific assignments.	May supervise or coordinate the work of engineers, draftsmen, technicians, and others who assist in specific assignments.
Typical Position Titles	Junior Engineer; Associate Detail Engineer; Engineer-in-Training; Asst. Research Engineer; Construction Inspector.	Engineer or Assistant Engineer; Project; Plant; Office Design; Process; Research; Inspector; Engineering Instructor.	Engineer or Assistant Engineer; Resident; Project; Plant; Office Design; Process; Research; Chief Inspector; Assistant Professor.
Education	Bachelor's Degree in engineering from an ABET accredited curriculum or equivalent, plus appropriate continuing education.		
Registration Status	Certified Engineer-in-Training.		Registered Professional Engineer.
Typical Professional Attainments	Member of Professional and Technical Societies (Associate Grade or Equivalent).		Member of Professional Society (Member Grade). Member of Technical Society (Associate Grade or Equivalent).

GRADE DESCRIPTIONS

	Engineer V	Engineer VI	Engineer VII
	Applies intensive and diversified knowledge of engineering principles and practices in broad areas of assignments and related fields. Makes decisions independently on engineering problems and methods, and represents the organization in conferences to resolve important questions and to plan and coordinate work. Requires the use of advanced techniques and the modification and extension of theories, precepts and practices of his field and related sciences and disciplines. The knowledge and expertise required for this level of work usually result from progressive experience.	Has full technical responsibility for interpreting, organizing, executing, and coordinating assignments. Plans and develops engineering projects concerned with unique or controversial problems which have an important effect on major organization programs. This involves exploration of subject area, definition of scope and selection of problems for investigation, and development of novel concepts and approaches. Maintains liaison with individuals and units within or outside his organization with responsibility for acting independently on technical matters pertaining to his field. Work at this level usually requires extensive progressive experience.	Makes decisions and recommendations that are recognized as authoritative and have an important impact on extensive engineering activities. Initiates and maintains extensive contacts with key engineers and officials of other organizations and companies, requiring skill in persuasion and negotiation of critical issues. At this level individuals will have demonstrated creativity, foresight, and mature engineering judgment in anticipating and solving unprecedented engineering problems, determining program objectives and requirements, organizing programs and projects, and developing standards and guides for diverse engineering activities.
	Supervision and guidance relate largely to overall objectives, critical issues, new concepts, and policy matters. Consults with supervisor concerning unusual problems and developments.	Supervision received is essentially administrative with assignments given in terms of broad general objectives and limits.	Supervision received is essentially administrative with assignments given in terms of broad general objectives and limits.
	One or more of the following: (1) In a supervisory capacity, plans, develops, coordinates, and directs a large and important engineering project or a number of small projects with many complex features. A substantial portion of the work supervised is comparable to that described for engineer IV. (2) As individual researcher or worker, carries out complex or novel assignments requiring the development of new or improved techniques and procedures. Work is expected to result in the development of new or improved techniques and procedures. Work is expected to result in the development of new or refined equipment, materials, processes, products, and/or scientific methods. (3) As staff specialist, develops and evaluates plans and criteria for a variety of projects and activities to be carried out by others. Assesses the feasibility and soundness of proposed engineering evaluation tests, products, or equipment when necessary data are insufficient or confirmation by testing is advisable. Usually performs as a staff advisor and consultant as to a technical specialty—a type of facility or equipment, or a program function.	One or more of the following: (1) In a supervisory capacity (a) plans, develops, coordinates, and directs a number of large and important projects or a project of major scope and importance, or (b) is responsible for the entire engineering program of an organization when the program is of limited complexity and scope. The extent of his responsibilities generally require a few (3 to 5) subordinate supervisors or team leaders with at least one in a position comparable to level V. (2) As individual researcher or worker conceives, plans, and conducts research in problem areas of considerable scope and complexity. The problems must be approached through a series of complete and conceptually related studies, are difficult to define, require unconventional or novel approaches, and require sophisticated research techniques. Available guides and precedents contain critical gaps, are only partially related to the problem, or may be largely lacking due to the novel character of the project. At this level, the individual researcher generally will have contributed inventions, new designs, or techniques which are of material significance in the solution of important problems. (3) As a staff specialist serves as the technical specialist for the organization (division or company) in the application of advanced theories, concepts, principles, and processes for an assigned area of responsibility (i.e., subject matter, function, type of facility or equipment, or product). Keeps abreast of new scientific methods and developments affecting his organization for the purpose of recommending changes in emphasis of programs or new programs warranted by such developments.	One or both of the following: (1) In a supervisory capacity is responsible for (a) an important segment of the engineering program of a organization with extensive and diversified engineering requirements, or (b) the entire engineering program of an organization when it is more limited in scope. The overall engineering program contains critical problems the solution of which requires major technological advances and opens the way for extensive related development. The extent of his responsibilities generally requires several subordinate organizational segments or teams. Recommends facilities, personnel, and funds required to carry out programs which are directly related with and directed toward fulfillment of overall organization objectives. (2) As individual researcher and consultant is a recognized leader and authority in his organization in a broad area of specialization or in a narrow but intensely specialized field. Selects research problems to further the organization's objectives. Conceives and plans investigations of broad areas of considerable novelty and importance for which engineering precedents are lacking in areas critical to the overall engineering program. Is consulted extensively by associates and others with a high degree of reliance placed on his scientific interpretations and advice. Typically will have contributed inventions, new designs, or techniques which are regarded as major advances in the field.
	Supervises, coordinates, and reviews the work of a small staff of engineers and technicians; estimates manpower needs and schedules and assigns work to meet completion date. Or, as individual researcher or staff specialist may be assisted on projects by other engineers or technicians.	Plans, organizes, and supervises the work of a staff of engineers and technicians. Evaluates progress of the staff and results obtained, and recommends major changes to achieve overall objectives. Or, as individual research or staff specialist may be assisted on individual projects by other engineers or technicians.	Directs several subordinate supervisors or team leaders, some of whom are in positions comparable to Engineer VI, or, as individual researcher and consultant, may be assisted on individual projects by other engineers and technicians.
	Senior or Principal Engineer, Resident Project Office, Design Process Research Ass't. Division Engineer, Associate Professor, Project Leader.	Senior or Principal Engineer, Division or District Engineer, Production Engineer, Assistant Division District or Chief Engineer, Consultant, Professor, City or County Engineer.	Principal Engineer, Division or District Engineer, Department Manager, Director or Assistant Director of Research, Consultant, Professor, Distinguished Professor or Department Head, Assistant Chief or Chief Engineer, City or County Engineer.

Member of Technical Society (Member Grade)
Publishes engineering papers, articles, textbooks, or makes presentations, gives lectures, provides training, etc.

continued on next page

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	Engineer VIII	Engineer IX
General Characteristics	Makes decisions and recommendations that are recognized as authoritative and have a far-reaching impact on extensive engineering and related activities of the company. Negotiates critical and controversial issues with top level engineers and officers of other organizations and companies. Individuals at this level demonstrate a high degree of creativity, foresight, and mature judgment in planning, organizing, and guiding extensive engineering programs and activities of outstanding novelty and importance.	An engineer in this level is either (1) in charge of programs so extensive and complex as to require staff and resources of sizeable magnitude (e.g., research and development, a department of government responsible for extensive engineering programs, or the major component of an organization responsible for the engineering required to meet the objectives of the organization) or (2) is an individual researcher or consultant who is recognized as a national and or international authority and leader in an area of engineering or scientific interest and investigation.
Direction Received	Receives general administrative direction.	
Typical Duties & Responsibilities	One or both of the following. (1) In a supervisory capacity is responsible for (a) an important segment of a very extensive and diversified highly engineering program, or, (b) the entire engineering program when the program is of moderate scope. The programs are of such complexity that they are of critical importance to overall objectives, include problems of extraordinary difficulty that often have resisted solution, and consist of several segments requiring subordinate supervisors. Is responsible for deciding the kind and extent of engineering and related programs needed for accomplishing the objectives of the organization, for choosing the scientific approaches, for planning and organizing facilities and programs, and for interpreting results. (2) As individual researcher and consultant, formulates and guides the attack on problems of exceptional difficulty and marked importance to the organization or industry. Problems are characterized by their lack of scientific precedents and source material, or lack of success of prior research and analysis so that their solution would represent an advance of great significance and importance. Performs advisory and consulting work for the organization as a recognized authority for broad program areas or in an intensely specialized area of considerable novelty and importance.	
Responsibility for Direction of Others	Supervises several subordinate supervisors or team leaders, some of whose positions are comparable to Engineer VII, or individual researchers some of whose positions are comparable to Engineer VII and sometimes Engineer VIII. As an individual researcher and consultant may be assisted on individual projects by other engineers or technicians.	
Typical Position Titles	Chief Engineer, Bureau Engineer, Director of Research, Department Head or Dean, County Engineer, City Engineer, Director of Public Works, Senior Fellow, Senior Staff, Senior Advisor, Senior Consultant, Engineering Manager.	Director of Engineering, General Manager, Vice President, President, Partner, Dean, Director of Public Works.
Education		
Registration Status		
Typical Professional Attainments		

TABLE #1
ASCE GRADES / FEDERAL G.S. EQUIVALENTS

ASCE GRADES	FEDERAL G.S.
I/II	5-7
III	9
IV	11
V	12
VI	13
VII	14
VIII	15
IX	16 and above

State Codes for "Office Location"

(see page 1 of questionnaire)

1 Alabama
2 Alaska
3 Arizona
4 Arkansas
5 California
6 Colorado
7 Connecticut
8 Delaware
9 District of Columbia
10 Florida
11 Georgia
12 Hawaii
13 Idaho
14 Illinois
15 Indiana
16 Iowa
17 Kansas
18 Kentucky
19 Louisiana
20 Maine
21 Maryland
22 Massachusetts
23 Michigan
24 Minnesota
25 Mississippi
26 Missouri
27 Montana
28 Nebraska
29 Nevada
30 New Hampshire
31 New Jersey
32 New Mexico
33 New York
34 North Carolina
35 North Dakota
36 Ohio
37 Oklahoma
38 Oregon
39 Pennsylvania
40 Rhode Island
41 South Carolina
42 South Dakota
43 Tennessee
44 Texas
45 Utah
46 Vermont
47 Virginia
48 Washington
49 West Virginia
50 Wisconsin
51 Wyoming
52 Canal Zone
53 Guam
54 Puerto Rico
55 Virgin Islands

98 Outside the U.S. *with* APO
99 Outside the U.S. *without* APO

Appendix IV.—Bibliography of Previous ASCE Biennial Salary Survey Reports

1951—*Civil Engineering*, August, 1951*
1953—*Civil Engineering*, July, 1953*
1955—Proc. Paper 761, August, 1955*
1957—Proc. Paper 1347, *Journal of the Board of Direction*, August, 1957*
1959—Proc. Paper 2188, *Journal of Professional Practice*, September, 1959*
1961—Proc. Paper 3146, *Journal of Professional Practice*, May, 1962*
1963—Proc. Paper 3897, *Journal of Professional Practice*, May, 1964*
1965—Proc. Paper 4820, *Journal of Professional Practice*, May, 1966*
1967—Proc. Paper 5984, *Journal of Professional Practice*, June, 1968*
1969—Proc. Paper 7500, *Journal of Professional Practice*, September, 1970*
1971—Proc. Paper 9025, *Enginering Issues—Journal of Professional Activities*, July, 1972*
1973—Proc. Paper 10450, *Engineering Issues—Journal of Professional Activities*, April, 1974*
1975—Proc. Paper 12090, *Engineering Issues—Journal of Professional Activities*, April, 1976*
1977—Proc. Paper 14110, *Engineering Issues—Journal of Professional Activities*, October, 1978*
1979—Proc. Paper 15568, *Issues in Engineering—Journal of Professional Activities*, July, 1980*

Note: The 1979 Salary Survey was the last one to be published as a Proceedings Paper of the Society. Starting with this 1981 Survey, a summary of key findings will be printed in an ASCE publication for general information of the membership, and the comprehensive survey data and evaluation will be available as a separate Society special publication.

*Out-of-print, no longer available from ASCE. Copies can be obtained from the Engineering Societies Library, 345 East 47th St., New York, N.Y. 10017.

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